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THESIS

ARMY PROGRAM MANAGERS:
A COMPETENCY PERSPECTIVE

by

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September 1994

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What characteristics distinguish successful Army program managers from their peers? The results of this study are based on the survey data obtained from program executive officers, program managers, and acquisition students, as well as interviews conducted with successful program managers. This research identified 11 core competencies that program managers felt were important to the "ideal" program manager. Additionally, this study identified five competencies which distinguish successful program managers. This study evaluates each of these competencies, and examines the ability of the Defense Systems Management College (DSMC) and the Naval Postgraduate School (NPS) to integrate these competencies into their respective curricula.

This study concludes that DSMC and NPS develop a block of instruction entitled "Marketing for Program Managers." This course would focus on how successful program managers apply these 16 competencies to the Army procurement system. By establishing the "Marketing for Program Managers" course, DSMC and NPS would ensure that future program managers are provided a "blue print" for becoming successful program managers.

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Army Program Managers:
A Competency Perspective

by

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ABSTRACT

What characteristics distinguish successful Army program managers from their peers? The results of this study are based on the survey data obtained from program executive officers, program managers, and acquisition students, as well as interviews conducted with successful program managers. This research identified 11 core competencies that program managers felt were important to the "ideal" program manager. Additionally, this study identified five competencies which distinguish successful program managers. This study evaluates each of these competencies, and examines the ability of the Defense Systems Management College (DSMC) and the Naval Postgraduate School (NPS) to integrate these competencies into their respective curricula.

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I. INTRODUCTION

A. BACKGROUND

During World War II, weapon systems[1] were designed and produced using basic technologies and standard mass production techniques. Once a weapon system was approved for production there were rarely any significant changes to the original design. The inherent stability of these designs allowed the Government to use contracting officers as the primary point of contact between the Department of Defense (DoD) and industry. (Baumgartner, 1979, p. 3)

Since World War II, advances in technology have led to the development of more complicated weapon systems and associated production techniques. In order to accommodate the new procurement processes, a new management approach evolved - program management. In general, program management can be defined as:

> The planning, organizing, directing, and controlling of company resources for a relatively short term objective that has been established to complete specific goals and objectives. (Kerzner, 1984, p. 4)

Today, DoD further defines program management as:

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[1]Department of Defense currently defines a weapon system as: "Items that can be used directly by armed forces to carry out combat missions." (Defense Acquisition Acronyms and Terms, 1991, p. B-121)

> A special management approach used to provide centralized authority and responsibility (on a team or task-force basis) for the primary accomplishment of a specified project or task. This approach involves the timely integration of divergent specialties and activities into a coherent, coordinated management structure. (Schmoll, 1993, p. 39)

In short, program management provides DoD with a single point of contact who is responsible for all aspects of the program throughout its life cycle. As leader of the program management team, the program manager is the individual who is ultimately responsible for the successful acquisition of that weapon system.[2] The Department of Defense divides its defense systems acquisitions into four acquisition categories (ACAT I-IV). Figure 1 provides an overview of the selection criteria for each of these categories.

The Defense Systems Management College (DSMC) defines a successful acquisition program as "... one that places a capable and supportable weapon in the hands of a user when and where it is needed, and does so within affordable resources." (Schmoll, 1993, p. 4) Although there is general consensus on what a successful acquisition program is, there has been little research conducted to determine what are the characteristics of a successful program manager.

One of the most extensive studies of successful program managers was completed by DSMC in 1989. The DSMC study identified

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[2]Chapter II provides further information on the DoD use of the program management approach in its weapon systems procurement process.

ACQUISITION CATEGORY SELECTION CRITERIA

ACAT-I (D):
- Defense Acquisition Board review
- Designated by Defense Acquisition Executive
- Decision by Defense Acquisition Executive
- RDTE Threshold: Grater than $ 300 million
- Procurement Threshold: Grater than $ 1.8 billion
- Example: Comanche Helicopter, Army Tactical Missile System

ACAT-I (C):
- Component (Service Headquarter) review
- Designated by Defense Acquisition Executive
- Decision by Service Secretary
- RDTE Threshold: Same as ACAT-I (D)
- Procurement Threshold: Same as ACAT-I (D)
- Example: Bradley Fighting Vehicle (upgrade), Abrams Tank (upgrade)

ACAT-II
- Does not meet ACAT-I criteria
- Designated by Service Secretary
- Decision by Service Secretary
- RDTE Threshold: Grater than $75 million
- Procurement Threshold: Grater than $300 million
- Example: Armored Gun System, Command and Control Vehicle

ACAT-III
- Does not meet ACAT-I or II criteria
- Designated by Component Acquisition Executive
- Decision at lowest appropriate level
- Example: High Mobility Muti-purpose Wheeled Vehicle, Armored Mortar System

ACAT-IV
- All others
- Designated by Component Acquisition Executive
- Decision at lowest appropriate level
- Example: M16 Rifle, Mine Clearing Line Charge

Figure 1: Acquisition Category Selection Criteria.
Source: Schmoll, 1993, p. 17, and Charles, 1993, pp. 1-8.

those characteristics which distinguished outstanding program managers.[3] The study was based on the premise that:

> The best way to find out what it takes to be a good program manager is to analyze the jobs of outstanding performers and identify what they do that makes them so effective. (Gadeken, 1989, p. 22)

The DSMC study encompassed 50 program managers from the Army, Navy, and Air Force. It developed a job competency model in order to identify and evaluate characteristics of successful program managers. The study defined a competency as an attribute of a program manager that underlies effective performance. (Cullen and Gadeken, 1990, p. 1.4)

The DSMC study found ten competencies which were common to all program managers. Additionally, it found six competencies which distinguished successful program managers from their peers. (Gadeken, 1989, pp. 22-23) The 16 competencies are:

- Action Orientation (*)[4]
- Interpersonal Assessment (*)
- Political Awareness (*)
- Relationship Development (*)
- Sense of Ownership/Mission (*)
- Strategic Influence (*)

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[3]The DSMC study used the nominations of Program Executive Officers in selecting "outstanding" performers. The selection process used by DSMC to identify outstanding program managers is explained further in Chapter II.

[4] Those competencies which distinguish outstanding from effective program managers are indicated by an (*).

- Assertiveness
- Critical Inquiry
- Focus on Excellence
- Innovation/Initiative
- Long-term Perspective
- Managerial Orientation
- Optimizing
- Proactive Information Gathering
- Results Orientation
- Systematic Thinking

The DSMC study found that there was a strong correlation between how program managers use these competencies in problem solving and whether the program manager was seen as being successful by his superiors. Yet the environment that program managers face today is far different than what their predecessors faced in the late 1980s. Since the beginning of this decade, DoD has faced budget cuts and significant force reductions. Both of these events have had a dramatic effect on the environment in which program managers currently operate.

Given these changes to the program manager's environment, are the competencies found in the DSMC Job Competency Model still relevant to the program managers of today? If these competencies are still relevant, how does DoD integrate them into its development of future program managers?

B. THESIS OBJECTIVES

The primary objective of this research is to provide the Acquisition Corps a "blue print" of leadership and managerial skills needed to become a successful program manager. Additionally, it provides NPS and DSMC further insight into the educational requirements for future program managers. By identifying the skills which are most important to program managers, DoD will be better equipped to develop future program managers.

C. RESEARCH QUESTIONS

1. Primary

What characteristics distinguish the Army's best ACAT-I program managers?

2. Subsidiary

- To what extent does the DSMC competency model hold true for current Army program managers?
- To what extent does the Systems Acquisition Management curriculum at NPS and the DSMC Program Management Course integrate competency awareness and training into their respective curricula?

D. SCOPE OF THESIS

The Army uses program managers to manage the procurement of everything from helicopters and tanks to ammunition and uniforms. If the Army is going to base its education and training programs of future major program managers on the DSMC job competency model, it should first ensure that the model is

representative of the competencies used by its ACAT-I program managers. This research is designed to evaluate the DSMC model from the perspective of the Army's ACAT-I program managers. The DSMC study found that there were no significant differences between the competencies used by major program managers and non-major program managers. Additionally, the DSMC study found that there was no significant difference between the competencies used by Army, Navy, or Air Force program managers. Yet the DSMC study drew only a small percent of its survey population from major Army programs (8.0%). By focusing on the Army ACAT-I program managers, this research addresses many of the limitations of the DSMC study.[5]

E. ORGANIZATION

Chapter II establishes the background of program management and an overview of DoD efforts to develop a professional acquisition corps. The DSMC Job Competency Model is introduced, evaluated, and the 16 DSMC competencies are defined. This chapter concludes with an examination of the limitations found in DSMC study.

Chapter III provides an overview of the DSMC Program Management course and the Systems Acquisition Management curriculum at NPS.

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[5]Limitations found in the original DSMC study are addressed in Chapter II.

Chapter IV describes the methodology used in validating the DSMC competency model and the selection process used to identify successful program managers. This chapter will also outline the questions used during the interviews of successful program managers.

Chapter V presents the statistical results of this study. It compares the survey results of successful Program Managers, Average Program Managers and acquisition students from DSMC and NPS. This chapter also provides an analysis of each of the program manager competencies through the use of extracts from interviews with successful program managers. This chapter concludes with an analysis of how DSMC and NPS integrate competency awareness and training into their respective curricula.

Chapter VI draws conclusions from the analysis and provides recommendations for the development of future program managers.

II. BACKGROUND

A. AN OVERVIEW OF PROGRAM MANAGEMENT

Over the past 30 years there has been a tremendous increase in the rate of change of technology. These changes have placed a great deal of stress on the traditional organization structure used in most corporations. The inherent bureaucracy and inflexibility found in most traditional management approaches has lead corporations to search for a more responsive management approach. One of the alternative management approaches that has evolved from this need is program management. (Kerzner, 1984, pp. 1-2)

The corporate world has found that program management offers many benefits over the more traditional corporate organizational structure. The benefits of program management include:

- Identification of a central point of responsibility for a program, which allows program continuity regardless of personnel turnover.
- Minimizes reporting requirements.
- Identification of time constraints for scheduling.
- Identification of the methodology used for tradeoff analysis.
- Measurement of accomplishment against plans and schedule.

- Identification of problems early so that corrective action may be taken.
- Improved estimating capabilities for future planning.
- Knowing when objectives cannot be met or when they will be exceeded. (Kerzner, 1984, p. 3)

These benefits must be weighed against the potential obstacles of:

- Project complexity
- Customer's special requirements
- Organizational restricting
- Project risks
- Changes in technology
- Forward planning and pricing (Kerzner, 1984, p. 3)

The person who is responsible for overcoming these potential obstacles and integrating the activities of the program is the program manager. The profile of a program manager can be defined as:

> The project manager[6] is responsible for coordinating and integrating activities across multiple, functional lines. In order to do this, the project manager needs strong communicative and interpersonal skills, must be familiar with the operations of each line organization, and should have a general knowledge of technology (Kerzner, 1984, p. 9).

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[6] The terms program management and project management are used interchangeably throughout program management literature.

The Department of Defense further defines the profile of a program manager as:

> ... a leader and a manager, who understands the requirements, environment, organization, activities, constraints, and motivations impacting on the program. The Program Manger is knowledgeable of and understands how to operate within the constraints imposed by the requirements generating system, the acquisition management system, and the Planning, Programming and Budgeting System (PPBS). The Program Manager coordinates the work of defense industry contractors, consultants, in-house engineers, logisticians, contracting officers, and others, whether assigned directly to the program office or supporting it from a functional matrix. (Acquisition Acronyms, 1991, pp. B89-B90)

In short, the role of a program manager is to direct the development and production of a weapon system within the constraints of cost, schedule, and performance. The program manager not only needs to understand the technical aspects of his program, but he must also be able to communicate the needs of his program effectively to others. The program manager's primary role is to "get people to communicate with each other to achieve a common understanding of the needs of the program and their places in the total program effort." (Baumgartner, 1979, pp. 76-77)

One of the major challenges facing a program manager is that he has few resources that he can call his own. While he has some control over his program's budget, most of his support staff is drawn from a matrix organization. Matrix Management can be defined as:

> An integrative management technique for sharing a common pool of specialists on a full or part time basis across various projects designed to bring functional expertise to

bear on issues which cross organizational boundaries to enhance more effective utilization of resources. (MICOM Regulation 10-9, 1991, p. 15)

The matrix organization is a hybrid of the functional structure and the product organizational structure. Figure 2 shows a typical matrix organization. Each program manager

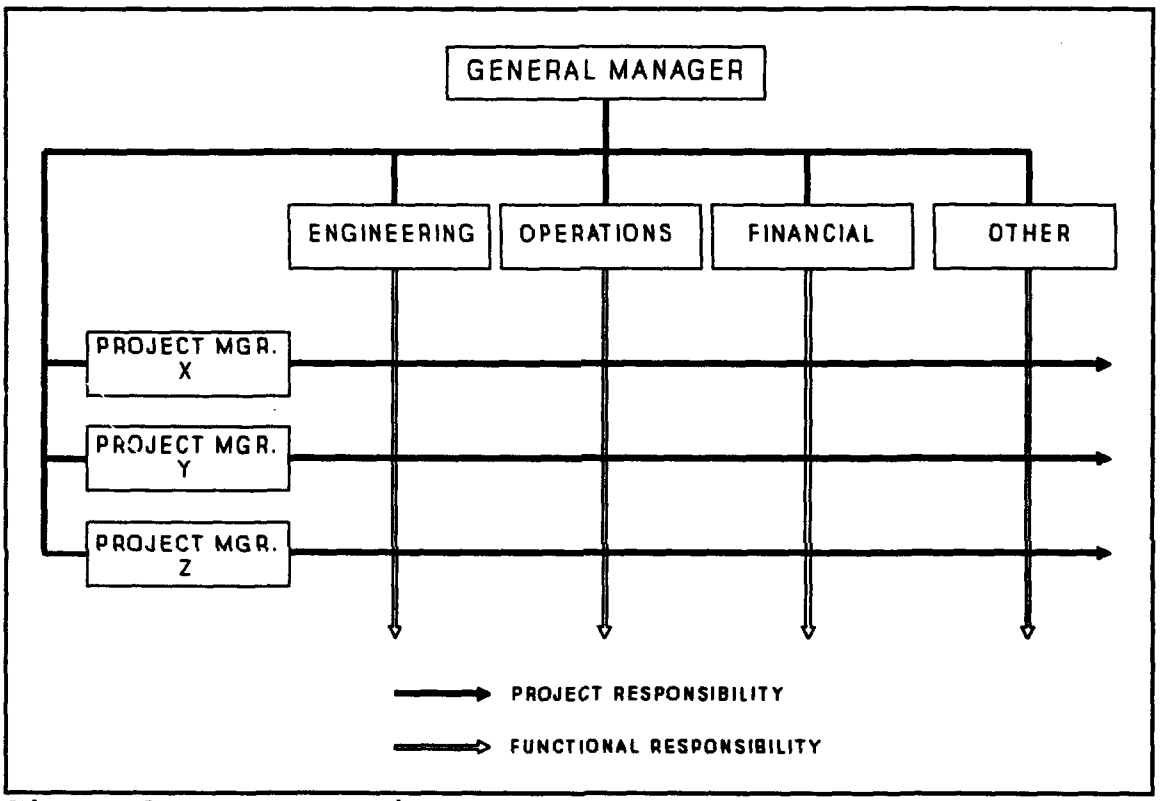

Figure 2: Pure Matrix Structure.
Source: Kerzner, p. 110.

reports directly to a general manager. The general manager entrusts the program manager with the authority and the responsibility for completing the project. The functional departments have the responsibility to provide the program manager with the technical expertise needed to complete each program. The success or failure of the program rests in the

ability of the program manager to focus the effort within this matrix structure on his program. The advantages of using a matrix organization are:

- The project manager is empowered to commit company resources.
- The matrix organization can react quickly to unscheduled changes affecting the program.
- The functional organizations exist essentially to support the project.
- Program costs are minimized by sharing key functional personnel with other programs. (Kerzner, 1984, p. 114)

The Army has implemented a slightly modified matrix management system. Figure 3 shows a typical matrix organization within the Army. Army Program Managers work directly for their respective Program Executive Officers, and receive their matrix support from various Major Commodity Commands. One of the primary missions of a Major Commodity Command is to provide matrix support to program managers. If the Major Commodity Command can not provide the required matrix support, the program manager is free to obtain private contractor support. This arrangement allows the program manager to influence the responsiveness of the matrix organization through control of program management funds. If there is a disagreement between the program manager and the matrix organization, the Program Executive Officer and the Commanding General of the Major Commodity Command will

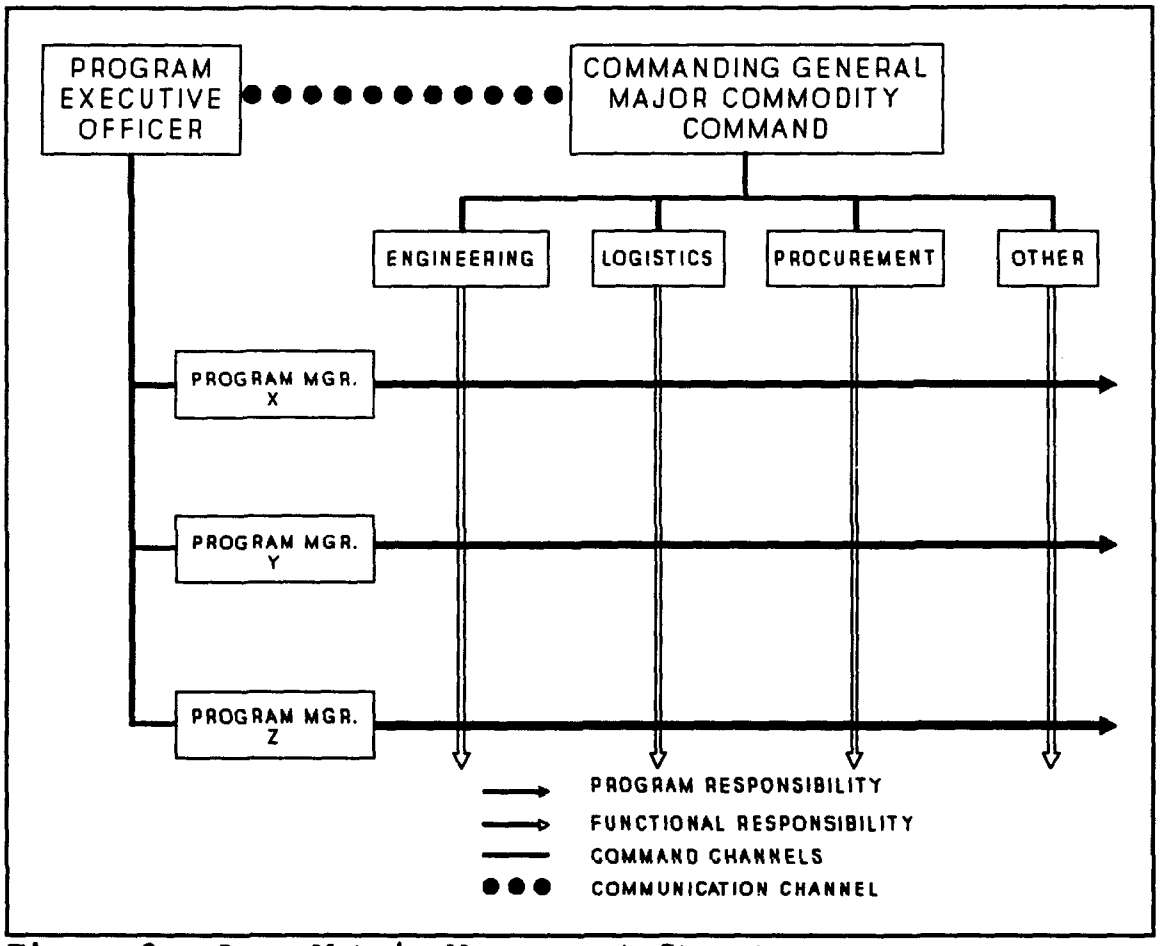

Figure 3: Army Matrix Management Structure.
Source: COL Gustine, Interview, 1994.

intervene. The matrix management system provides the program manager with quality support at competitive prices. By controlling the quality of his matrix support personnel, the program manager can stabilize the internal environment of his program and focus his efforts on the external environment of his program. (MICOM Regulation 10-9, 1991, pp. 1-9)

The external environment of DoD program managers is more complex than that of their corporate counterpart. The weapon systems that program managers are responsible for do not

evolve in a vacuum. Outside factors impact on the procurement of weapon systems that no one person can control. These factors include: Congress, the Executive Branch, industry, public opinion, the media, and even our allies. Many of these factors have competing interests. These competing interests have a significant impact on the environment in which the program manager operates. Figure 4, the Tortured Triangle, depicts the interrelationship of these factors on the program manager. The failure of the program manager to be aware of the political environment may not only lead to the program being canceled, but also to soldiers not receiving the weapon systems they need.

B. THE EVOLUTION OF THE DoD ACQUISITION PROCESS

1. World War II

During World War II, the defense industry was comparable to the manufacturing industry, focusing on simplicity, reliability, and productivity. Aircraft, tanks, and ships were produced by several manufactures using the same design. "Mass production was swift and dependable. Once production began, there were seldom any interruptions." (Fox, 1974, p. 13) Since there were seldom any changes to weapon systems once they were in production, there was little need for the centralized approach of program management.

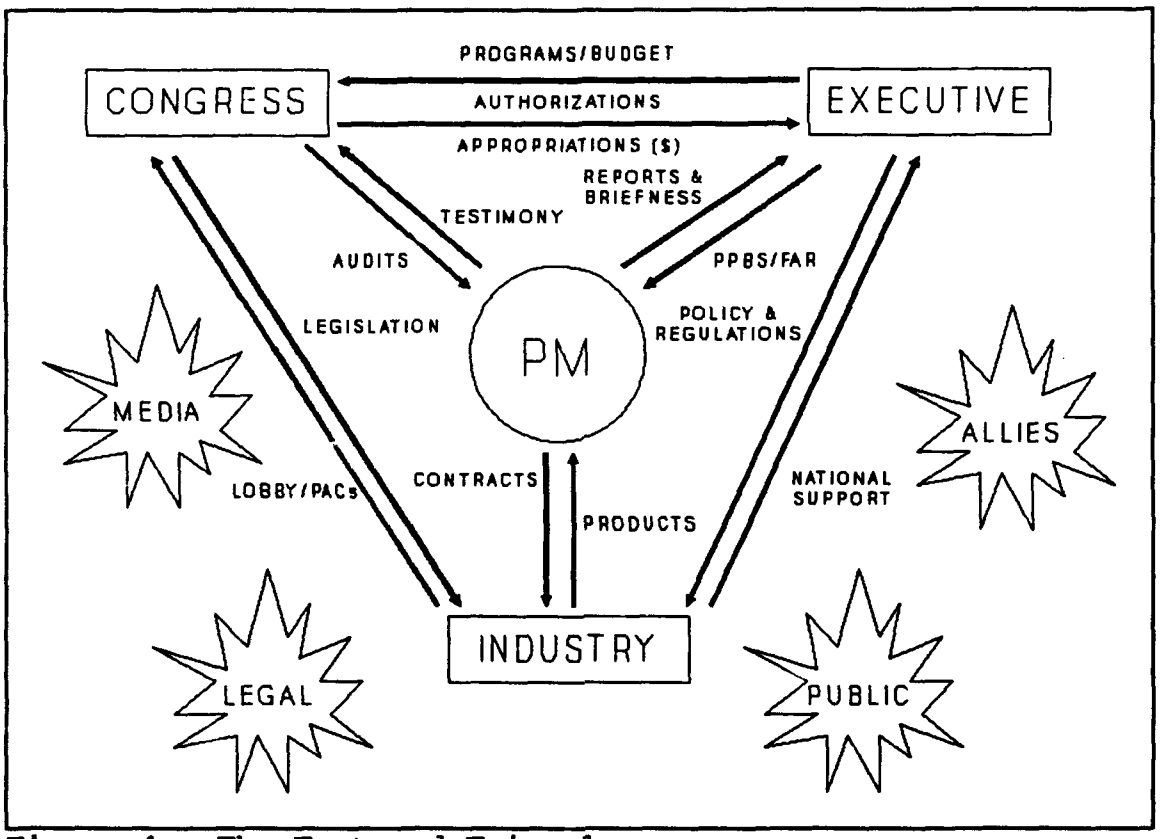

Figure 4: The Tortured Triangle.
Source: Schmoll, p. 4.

The War Department[7] first used the concept of program management on the Manhattan Project during World War II. The development of the atomic bomb required the Government to invest heavily in research, development, and production of an untried weapon system. In order to coordinate the engineering, construction, and operation of plants to produce the atomic bomb, the War Department found that they needed one point of contact to run the program. In 1942, the War

[7]In July 1947, Congress passed the National Security Act which created the Department of Defense and placed the Navy Department, the War Department, and the Air Force under its control. (Blechman, 1993, p. 1)

Department selected then BG Leslie R. Groves as its first program manager. BG Groves found that one of his primary responsibilities was to insure that each member of the project understood his part in the total project effort. (LTG Groves, 1962, pp. ix-xiv)

By establishing firm command channels for the Manhattan Project, the War Department set a precedent for giving a program manager both the authority and responsibility for the successful development of a weapon system. This precedent has since become the cornerstone in the DoD program management approach to weapon systems procurement.

2. Post World War II

As weapon systems became more technologically complex, the need to effectively integrate all of the aspects of a weapon system's life cycle became apparent. In order to centralize control and responsibility for procurement of a weapon system, Congress enacted the Armed Service Procurement Act in 1947. This Act detailed specific procedures for each Service to follow while procuring a weapon system. It was the foundation of the Armed Services Procurement Regulation. (Defense Seminar, 1991, p. A-5)

Throughout the 1950s and 1960s, the amount of regulation and bureaucracy surrounding the procurement process continued to grow. The regulations and bureaucracy evolved because Congress did not have confidence in the DoD ability to

manage procurement programs. These congressionally mandated procedures were designed to control the procurement process. These supplementary control procedures resulted in a procurement process that was time consuming and cumbersome. As a result of this growing bureaucracy, the DoD procurement process was plagued by cost overruns and long development times. By the end of the 1960s, a system that was designed to produce a weapon system in five years was micromanaged to the point that the process took fifteen years. Once the weapon system was fielded, the technology was usually obsolete. As one general put it "The Russians can steal our technology faster than we can field it." (Gregory, 1989, pp. 1-7)

3. Calls for Reform of Acquisition Process (1970-1989)

Since the early 1970s, several commissions have called for reform of the DoD acquisition process. These commissions concluded that the acquisition process was complex, and needed people with professional skills to conduct the procurement process. Two of the most significant commissions which called for procurement reform were The Commission on Government Procurement (1970), and The President's Blue Ribbon Commission on Defense Management (1986).

a. The Commission on Government Procurement

In 1970, the Commission on Government Procurement was formed by Congress to evaluate the Government procurement process. In 1972, this Commission provided Congress with 149

recommendations for establishing an integrated system for effective management, control, and operation of the Federal procurement process.

The cornerstone of the Commission's recommendations was the need to establish the Office of Federal Procurement Policy. This Office was to provide leadership in establishing Government-wide procurement policies. Once the Office of Federal Procurement Policy was opened, its key function was to establish

> ... government wide recruitment, training, education, and career development programs to ensure professionalism in procurement operations and the availability of competent trained personnel. (Page, 1980, p. 362)

b. The President's Blue Ribbon Commission on Defense Management

In 1986, President Reagan established the Blue Ribbon Commission on Defense Management. This Commission was widely known as the Packard Commission. The Commission was established to study the DoD management of the acquisition process.

The Packard Commission reported that the problems which plagued the defense acquisition process "... were seldom the result of fraud or dishonesty. Rather they were symptomatic of other underlying problems that affect the entire acquisition system." (President's Blue Ribbon Commission, 1986, p. 44) It found that the underlying problem with the acquisition process was the process itself. The

procurement process had developed into an increasingly bureaucratic and overregulated process. The Packard Commission reported that, compared to civilian industry, the acquisition workforce was underpaid, inexperienced, and undertrained.

One of the major recommendations of this Commission focused on the development of a professional acquisition corps for DoD. This particular recommendation is shown below:

> DoD must be able to attract and retain the caliber of people necessary for a quality acquisition program. Significant improvements should be made in the senior-level appointment system. The Secretary of Defense should have increased authority to establish flexible personnel management policies necessary to improve defense acquisition. Federal regulations should establish business-related education and experience criteria which will provide a basis for the professionalization of their career paths. (President's Blue Ribbon Commission, 1986, pp. 65-66)

C. PROFESSIONALISM OF THE ACQUISITION WORKFORCE

As a result of the work done by the Commission on Government Procurement and the Packard Commission, both DoD and Congress have made concerted efforts to reform the acquisition process. Part of this effort has focused on the development of a professional acquisition corps.

In order to better understand these reforms, it is important to understand what a profession is. It is difficult to evaluate the level of professionalism in the Acquisition

Corps because professionalism embodies values, motivations, and attitudes which are inherently difficult to measure.

Because of the inherent difficulty in evaluating the level of professionalism in acquisition career fields, efforts have focused on developing these career fields into a profession. Sociologists generally view a profession as an organized group which constantly interacts with society, and forms a social function through a network of formal and informal relationships. (Pavalko, 1992, p. 3) To be considered a profession, a field of study must have the following attributes:

- Body of Knowledge
- Education and Training
- Professional Organizations
- Certification or Licensing
- Code of Ethics
- Social Utility (Investigation Subcommittee, 1990, p. 48)

1. Body of Knowledge

A profession must have a body of knowledge which is developed and maintained through the application of systematic research. This body of knowledge is tied to an academic curriculum, which is responsible for the expansion of this body of knowledge through on-going research. (Investigation Subcommittee, 1990, p. 415)

2. Education and Training

A profession requires an extensive understanding of the theories supporting its body of knowledge. This understanding is provided to the young professional through extensive education and training, a process which must continue throughout the individual's professional career. This is generally accomplished by attending seminars, refresher courses, and through reading professional journals. (Investigation Subcommittee, 1990, p. 415)

3. Professional Organization

One of the important aspects of a profession is the presence of a representative association. Associations encourage the professional development of its members through workshops, seminars, and publishing newsletters and journals. They seek to promote the competency of their members through education, certification, and rigorous examination. (Investigation Subcommittee, 1990, p. 415)

4. Certification or Licensing

Professional associations are responsible for ensuring the educational quality and competency of their members. One of the key tools available to the association to ensure these standards are met is the certification process. Certification establishes the standards of expertise, measures knowledge, and recognizes the professional ability of the individual. (Investigation Subcommittee, 1990, p. 415)

5. Codes of Ethics

Codes of ethics are based on a general concern for the public welfare. A profession's code of ethics is normally a code to which the individual swears to prior to admittance into the profession. It is the ability of the profession to enforce this code which allows the profession as a whole to maintain the public's trust. (Pavalko, 1972, p. 10)

6. Social Utility

The final phase in the evolutionary transition of an occupation into a profession is to have society recognize the need for that profession. (Investigation Subcommittee, 1990, pp. 415-416)

With DoD spending millions of dollars on weapon systems procurement yearly, the need to have professionals administering the procurement process has been documented. In order to promote the development of a professional acquisition workforce, Congress passed the Defense Acquisition Workforce Improvement Act.

D. THE DEFENSE ACQUISITION WORKFORCE IMPROVEMENT ACT (DAWIA)

In 1990, Congress passed the most significant legislative effort towards professionalizing the acquisition process; the Defense Acquisition Workforce Improvement Act. The Defense Acquisition Workforce Improvement Act was designed to establish a framework which would provide an organizational structure for acquisition personnel. The portions of DAWIA

which are particularly germane to this study include the establishment of the Acquisition Corps, qualification standards for members of the Acquisition Corps, and the establishment of the Defense Acquisition University.

1. Establishment of the Acquisition Corps

Congress appreciated that the skills and professional characteristics needed for a person to be successful in an acquisition position were complex and demanding. The Defense Acquisition Workforce Improvement Act formally recognized members of the Acquisition Corps as a group of elite professionals who had obtained expertise in the multi-functional acquisition career field. This legislation concentrated on the professionalization of the workforce rather than on the acquisition process. This legislation was prepared under the premise that:

> Improving the quality of the workforce will not in and of itself address such problems as service parochialism and budget instability. However, such improvements will significantly improve the ability of personnel to carry out the acquisition process. (Congressional Record, 1990, p. H7378)

Additionally, this legislation ended the practice of assigning unqualified military personnel from outside the acquisition career field into key acquisition management positions. Congress thought it would be inappropriate to place inexperienced senior personnel into an acquisition supervisory position. All acquisition career positions would

now be filled by qualified acquisition professionals. (Congressional Record, 1990, pp. H7378-H7382)

2. Qualification Standards and Career Progression

In an effort to develop a more professional acquisition workforce, DAWIA required DoD to establish an acquisition career structure by 1993. This structure established qualification standards for acceptance into the Acquisition Corps and specific standards for all of the acquisition positions throughout DoD. This legislation mandated the following minimum qualifications for acceptance in the Acquisition Corps:

- Baccalaureate Degree or certification by the Acquisition Career Program Board.
- Completion of 24 semester hours in business, finance, quantitative methods, or management related subjects.
- A minimum of four years experience in acquisition related positions.
- Hold the grade of GS-13 or 04 (Major/Lt. Commander).
- Civilian members of the Acquisition Corps must sign a statement of mobility. (Congressional Record, 1990, p. H7384)

The Defense Acquisition Workforce Improvement Act also specified additional qualifications for personnel to be selected as a program manager. These qualifications include:

- Completion of the DSMC Program Management Course or equivalent.
- A total of eight or more years acquisition related experience. For at least two of these years the program manager candidate must have been assigned to a program office.
- Sign a written agreement to remain as a program manager until the program reaches the next major milestone or for four years. (Congressional Record, 1990, p. H7384)

These standards were based on the level of required education, training, and experience needed for each position. Congress recognized that:

> The only way to "grow" the high quality professional acquisition leaders of tomorrow is to identify today the qualifications and standards which are needed so that personnel who aspire to hold those positions in the future have a clear roadmap as to the types of job experience, education, and training they should strive to achieve in order to be competitive for future acquisition leadership positions. (Congressional Record, 1990, p. H7382)

3. Defense Acquisition University

In order to establish a baseline for educational and training requirements, DAWIA directed that DoD identify the required body of knowledge needed for each acquisition and functional area. In order to coordinate these efforts throughout DoD, DAWIA established the Defense Acquisition University. This institution would be responsible for coordinating education and training programs to support the acquisition career fields. Additionally, the Defense Acquisition University would be responsible for "research and

analysis of defense acquisition policy issues from an academic perspective " (Public Law 101-510, 1990, p. 1653)

Through the DAWIA legislation, Congress mandated that DoD establish a professional organization that could effectively manage the weapon systems procurement process. By establishing the Acquisition Corps and the Defense Acquisition University, Congress has provided the building blocks needed to ensure that DoD has professionals managing its weapon systems procurement process.

E. THE DSMC JOB COMPETENCY STUDY

As a result of DAWIA, DoD has established strict guidelines for selecting program managers. The purpose of these guidelines is clear; to select only those personnel who will have the technical, educational, and training experience needed to succeed as a program manager. Yet these standards cannot guarantee that the selected personnel will succeed as program managers.

In February, 1990, the Defense Systems Management College (DSMC) released the results of a study entitled A Competency Model of Program Managers in the DoD Acquisition Process. The purpose of this study was to identify those characteristics which distinguish outstanding program managers. The Defense Systems Management College understood that although there had been a few highly publicized acquisition programs which had failed, most of the DoD program managers completed their

programs within the constraints of cost, schedule, and performance. The Defense Systems Management College based their study on the premise that the best way to prepare future program managers was to develop an educational curriculum based on lessons learned from successful program managers. (Cullen and Gadeken, 1990, p. 1.3)

The DSMC study used a job competency model to identify and evaluate characteristics of program managers. The study defined a competency model as:

> A systematic listing of personal characteristics associated with superior performance in a particular job. These personal characteristics or competencies can be any skill, behavior, knowledge, motive or trait that is demonstrated more frequently and in a greater variety of situations by superior performers than by average performers and is causally related to effective performance in a variety of job tasks. (Cullen and Gadeken, 1990, p. 1.3)

The DSMC job competency model included the following components:

- The competencies that were critical for outstanding performance.
- The definitions of those competencies in terms of observed behavior.
- The relationships among those competencies and major task and activities that make up the job. (Cullen and Gadeken, 1990, p. 1.4)

1. The Final DSMC Job Competency Model

The final program manager competency model included ten competencies which all program managers shared.

Additionally, it included six competencies which distinguished the outstanding program mangers from the other program managers. The 16 competencies and their definitions are listed below:[8]

- Action Orientation (*): Reacts to problems energetically and with a sense of urgency.
- Interpersonal Assessment (*): Identifies specific interest, motivations, strength, and weaknesses of others.
- Political Awareness (*): Knows who influential players are, what they want, and how best to work with them.
- Relationship Development (*): Spends time and energy getting to know program sponsors, users, and contractors.
- Sense of Ownership/Mission (*): Sees self as responsible for the program; articulates problems or issues from a broader organization or mission perspective.
- Strategic Influence (*): Builds coalitions and orchestrates situations to overcome obstacles and obtain support.
- Assertiveness: Takes or maintains positions despite anticipated resistance or opposition from influential others.
- Critical Inquiry: Explores critical issues that are not being explicitly addressed by others.
- Focus on Excellence: Strives for the highest standards regardless of circumstances.
- Innovation/Initiative: Champions and pushes new ways of meeting program requirements.
- Long-term Perspective: Anticipates and plans for future issues and problems.

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[8]Those competencies which distinguish outstanding program managers are indicated by (*).

- Managerial Orientation: Gets work done through the efforts of others.
- Optimizing: Makes decisions after carefully evaluating advantages and disadvantages.
- Proactive Information Gathering: Systematically collects and reviews information.
- Results Orientation: Evaluates performance in terms of accomplishing specific goals or meeting specific standards.
- Systematic Thinking: Organizes and analyzes problems methodically. (Cullen and Gadeken, 1990, pp. 2.7 - 2.12)

The original DSMC job competency model includes two additional hypothesized competencies: Collaborative Influence and Directive Influence. These competencies were dropped from the final model because DSMC found that these competencies were only marginally significant to the performance of program managers. The definitions used by DSMC for these two competencies are listed below:

- Collaborative Influence: Gains the support of others by identifying areas of mutual benefit.
- Directive Influence: Uses positional power or threats to achieve outcomes. (Cullen and Gadeken, 1990, p. 2.12)

The 16 competencies identified by the DSMC study have helped to identify the most critical managerial skills needed by program managers. By focusing on the actual skills used by effective program managers and not postulating on what these skills should be, DSMC has provided the Acquisition Corps with

a useful starting point towards developing future program managers.

2. Development of the DSMC Job Competency Model.

The DSMC used a four step approach in developing its competency model: meeting with a management resource panel, conducting in-depth interviews, developing the competency model, and validating the competency model. (Gadeken, 1989, p. 43)

a. Management Resource Panel

This panel was made up of personnel with extensive program management experience. These panel members first identified key task and performance measures for program managers. The panel was then asked to nominate two groups of program managers: successful program managers (top), and a group of effective program managers (more typical performers). In both groups, the panel was allowed to nominate both program managers and deputy program managers. The panel nominated a total of 50 program and deputy program managers. These groups were later verified through the use of a Program Management and Executive Development Survey. The demographics of the DSMC interview sample population are shown in Table I.

b. Conducting In-depth Interviews

The interview team then conducted interviews with program managers from each of the 50 programs. During these interviews, program managers were asked to identify job

TABLE I
DSMC INTERVIEW DEMOGRAPHICS

	MAJOR PROGRAMS	NON-MAJOR PROGRAMS	TOTAL
AIR FORCE			
SUPERIOR	3	4	7
AVERAGE	5	4	9
ARMY			
SUPERIOR	2	2	4
AVERAGE	3	8	11
NAVY			
SUPERIOR	9	2	11
AVERAGE	6	2	8
TOTAL	28	22	50

Source: Cullen - Gadeken, 1990, p. 2-6.

situations and describe in detail how they dealt with them.

c. Developing the Competency Model

The interviewers, with the help of an outside consulting firm, analyzed the transcripts from these interviews in order to identify competencies relating to outstanding program management. The transcripts were scored based on the number of times a program manger described the use of one of the competencies in resolving job situations. The results of the DSMC analysis of the interview transcripts are provided in Table II.

In analyzing the results from the scored interview transcripts, DSMC used a one tailed t-test. This test was used since DSMC assumed that the mean scores for outstanding program managers would be greater than the scores for average

TABLE II
DSMC INTERVIEW ANALYSIS

	OUTSTANDING (N = 22)			AVERAGE (N = 28)			t	P
	MEAN	STANDARD DEVIATION	RANK ORDER	MEAN	STANDARD DEVIATION	RANK ORDER		
SENSE OF OWNERSHIP (*)	4.6	3.2	3	3.0	2.5	4	2.0	.03
POLITICAL AWARENESS (*)	6.4	4.0	1	3.7	3.3	1	2.6	.01
RELATIONSHIP DEVELOPMENT (*)	3.6	3.0	9	1.5	1.4	13	3.0	.003
STRATEGIC INFLUENCE (*)	5.1	2.9	2	2.6	1.9	6	3.4	.001
INTERPERSONAL ASSESSMENT (*)	4.1	3.7	6	2.0	2.3	9	2.3	.01
ASSERTIVENESS	2.0	1.9	12	1.4	1.4	14	1.3	.09
MANAGERIAL ORIENTATION	2.8	1.7	10	2.2	2.1	7	1.2	ns
RESULTS ORIENTATION	4.3	3.5	4	3.2	2.9	2	1.2	ns
CRITICAL INQUIRY	4.1	3.0	5	3.0	2.6	5	1.4	.08
LONG TERM PERSPECTIVE	2.6	2.5	11	1.8	1.8	10	1.3	.09
FOCUS ON EXCELLENCE	1.2	1.8	16	0.6	0.8	16	1.3	.09
INNOVATIVENESS	1.6	3.0	15	.06	0.8	15	1.3	.09
OPTIMIZING	1.9	2.1	13	2.1	1.9	8	.29	ns
ACTION ORIENTATION (*)	3.7	2.0	7	1.7	1.9	12	3.5	.001
PROACTIVE INFORMATION GATHERING	3.6	2.8	8	3.0	2.2	2	.83	ns
SYSTEMATIC THINKING	1.7	0.9	14	1.7	1.3	11	.11	ns

Source: Cullen - Gadeken, 1990, p. 2-11.

performers. Using this one tailed t-test as the basis for their data analysis, DSMC found that there were six

competencies that significantly differentiated superior program managers from average program managers.[9] (Cullen - Gadeken, 1990, p. 2-11)

d. Validating the Competency Model

Because the interview sample was small (50 program managers and deputy program managers), DSMC validated its model by surveying 353 acquisition professionals. The survey population included the original 50 program managers, 78 additional program managers, and 225 personnel in other acquisition related positions. This survey required participants to identify the 12 most important competencies for a program manager from a list of 27 competencies. The survey contained the 18 competencies developed by the management resource panel, plus 9 socially desirable traits or "dummy" competencies. The nine "dummy" competencies and their definitions are listed below:

- Attention to Detail: Carefully reviews plans, reports, etc. to ensure that they are complete, accurate, and conform to standards.

[9]The DSMC study hypothesized that there would be a statistical differentiation between the responses of superior and average program managers. The study found that six competencies were statistically significant below a probability of 5.0%. This means that if there were no difference between the two groups, the probability of getting these responses from superior program managers is 5.0%. Since this is unlikely, DSMC concluded that these competencies differentiated the two groups.

- Coaches Others: Providing others with performance feedback and suggestions to improve their capabilities.
- Creativity: Thinking up novel or unique ways to solve technical or administrative problems that others have difficulty solving.
- Competitiveness: Being energized by direct or indirect challenge to own or work group's performance.
- Efficiency Orientation: Continuously looking for ways to cut cost and complete even routine tasks more quickly.
- Interpersonal Sensitivity: Accurately identifying the spoken or unspoken feelings of others and acting accordingly.
- Positive Expectations: Assuming that others will perform effectively if given the opportunity and needed resources.
- Professionalism: Describing self as being seen by others as a technical expert in one or more acquisition specialty areas.
- Self Control: Remaining calm and unemotional in stressful situations. (Cullen and Gadeken, 1990, p. 4.3)

The survey found that there was a significant difference in how program managers and other acquisition professionals ranked job competencies. Program managers tended to focus on managing their external environment, while other acquisition professionals focused on technical expertise. The results of the DSMC survey are shown in Table III.

The survey results were similar to the findings of the interviews. Analysis of the surveys found that program managers ranked only one of the job competency model competencies below 18 (Assertiveness, rank = 24).

TABLE III
DSMC SURVEY ANALYSIS

	PROGRAM MANAGERS (N = 128)		OTHER ACQUISITION PROFESSIONALS (N = 28)	
	% RATED IMPORTANT	RANK ORDER	% RATED IMPORTANT	RANK ORDER
SENSE OF OWNERSHIP	.73	1	.67	5
POLITICAL AWARENESS	.62	4	.75	1
RELATIONSHIP DEVELOPMENT	.48	10	.55	7
STRATEGIC INFLUENCE	.45	13	.44	11
INTERPERSONAL ASSESSMENT	.42	17	.38	15
ASSERTIVENESS	.27	24	.35	21
MANAGERIAL ORIENTATION	.67	3	.68	4
RESULTS ORIENTATION	.57	6	.56	6
CRITICAL INQUIRY	.40	18	.37	19
LONG TERM PERSPECTIVE	.72	2	.72	2
FOCUS ON EXCELLENCE	.50	9	.47	9
INNOVATIVENESS	.55	7	.46	10
OPTIMIZING	.60	5	.70	3
ACTION ORIENTATION	.48	10	.39	15
PROACTIVE INFORMATION GATHERING	.45	13	.37	19
ATTENTION TO DETAIL	.28	23	.25	23
COLLABORATIVE INFLUENCE	.40	18	.37	17
COACHES OTHERS	.47	12	.37	17
CREATIVITY	.44	15	.33	22
DIRECTIVE INFLUENCE	.22	26	.24	24
EFFICIENCY ORIENTATION	.24	25	.24	24
POSITIVE EXPECTATIONS	.38	20	.39	14
COMPETITIVENESS	.11	27	.10	27
SELF CONTROL	.43	16	.41	13
INTERPERSONAL SENSITIVITY	.29	22	.23	26
PROFESSIONALISM	.34	21	.42	12
SYSTEMATIC THINKING	.55	7	.42	12

Source: Cullen and Gedeiken, 1990, p. 4.8

Additionally, the survey results showed that none of the "dummy" competencies were rated higher than 12. (Gadeken, 1990, p. 24)

e. Limitations of the DSMC Study

Although the DSMC study was broad based; encompassing program mangers from the Army, Navy, and Air Force, it does have limitations. These limitations are found primarily in the sample size of Army programs used by DSMC. The DSMC study interviewed a total of 15 Army program and deputy program managers. The Army currently has over 220 acquisition programs in various stages of development or production.[10] This means that the DSMC sample population represented only 6.8% of the total Army acquisition programs. (Designation of Major Defense Acquisition Programs, 1993, pp. 1-15)

The second limitation to the DSMC study is the number of Army ACAT-I (D/C) program managers interviewed during their research. The DSMC study interviewed 5 program and deputy program managers out of a total population of 70. This means that the DSMC study only interviewed 7.1% of the Army ACAT-I (D/C) program and deputy program managers.

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[10] The number of Army acquisition programs underway in 1990 is unavailable. However, the 1993 figure of 220 programs provides a reasonable lower confidence level of the total number of Army programs in 1990. It is unlikely the number of programs underway was less than this in 1990, prior to the budget cuts of the past few years.

The final limitation of the DSMC study, that is germane to this research, is that DSMC only identified four successful Army program and deputy program managers. While the total number of successful program managers is unknown, it is difficult to accept that only 4 program managers were considered successful out of a population of over 220.

While these limitations do not invalidate the study, they do show that further study is needed in order to verify the DSMC study results and expand the Acquisition Corps body of knowledge. If the Army is to base its training of future program managers off of the DSMC job competency model, it must first insure that the competencies established by the DSMC study are valid for Army program managers.

F. SUMMARY

This chapter has traced the evolution of program management from both the corporate and DoD perspective. During the 1970s there was a call to reform the DoD acquisition process based on the recommendations of the Commission on Government Procurement and the Packard Commission. Through the concerted efforts of these Commissions it was recognized that DoD needed a professional acquisition workforce. In 1990, Congress passed the Defense Acquisition Workforce Improvement Act in an effort to reform the DoD acquisition process. This legislation established strict guidelines for selecting members of the Acquisition

Corps, and for selecting program managers. Yet DAWIA cannot guarantee that the selected personnel will succeed as program managers.

In an effort to understand what it takes to become a successful program manager, DSMC conducted a study of program managers throughout DoD. The results of this study were the basis for the DSMC Job Competency Model. The DSMC model established that there are 16 competencies directly related to program management.

The DSMC study was broad based, but the number of Army program managers studied was relatively small. Further research is needed to determine if the DSMC study is a valid foundation upon which to base the training of future Army program managers.

III. OVERVIEW OF THE DSMC PROGRAM MANAGEMENT COURSE AND THE NPS SYSTEMS ACQUISITION MANAGEMENT CURRICULUM

A. GENERAL

The Defense Acquisition Workforce Improvement Act (DAWIA) of 1990 requires that a member of the Acquisition Corps complete the Defense Systems Management College (DSMC) Program Management Course, or its equivalent, before DoD can select him as a program manager. This chapter provides an overview of the DSMC Program Management Course and the Systems Acquisition Management Curriculum offered by the Naval Postgraduate School (NPS).[11]

B. THE DSMC PROGRAM MANAGEMENT COURSE

1. Overview of the Program Management Course

The Program Management Course was first offered by DSMC in 1971. The Defense Systems Management College developed this course to provide an advanced level of acquisition management education for mid-level military officers and civilian personnel. The objective of the course is to develop and improve the individual's knowledge of program management and managerial competencies in order to

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[11]Currently, the Systems Acquisition Management curriculum offered by NPS is the only comparable curriculum certified by the Defense Acquisition University as meeting the DAWIA Program Management requirement. (Lamm, 1994, Interview)

prepare him to successfully manage DoD system acquisition programs. (Syllabus; Program Management Course, 1993, p. 1)

The Program Management Course is currently a 20 week course divided into two parts.[12] During the first six weeks the curriculum focuses on providing students with a basic understanding of program management, the acquisition processes, and the overall acquisition environment. During the last 14 weeks of the program students integrate the knowledge they obtained in the first part of the program into a simulated weapons acquisition case. (Cullen and Gadeken, 1990, pp. 5.1-5.2)

2. Program Management Course Structure

Throughout the course, DSMC follows an instructional methodology which includes lecture and discussion, case studies, practical exercises, simulations, and self directed studies. The course is structured around 12 functional areas, integrated subjects, and the GRAND SLAM exercise. (Syllabus; Program Management Course, 1993, p. 2)

a. Functional Areas

The 12 functional areas provide the students with a basic understanding of the different facets of the acquisition body of knowledge. Lectures and discussions are used to provide the student with a foundation of knowledge for

[12]The DSMC Program Management Course is currently undergoing revision to make it a 14 week course.

each of the 12 functional areas. The course integrates case studies and practical exercises to reinforce the knowledge that students gained during the lectures. Each of the functional areas are described below.

(1) Acquisition Policy and Environment. The Acquisition Policy and Environment functional area provides a basic understanding of the decision-making process between the three key DoD acquisition participants; DoD, Congress, and Industry. Additionally, this functional area provides an overview of the program management environment to include: life cycle and resource allocation, organizational and management practices, and the fundamentals of acquisition strategy and planning. The Program Management Course provides 17 hours of classroom instruction in this functional area. Subjects covered by this functional area include:

- DoD Acquisition Management Systems
- The World of Defense Systems Acquisition Management
- Acquisition Management Organizations in DoD
- Acquisition Policy Case Study (Syllabus; Program Management Course, 1993, p. 3 and p. 12)

(2) Contractor Financial Management. The Contractor Financial Management functional area is designed to allow students to develop an understanding of the contractor financial management issues that effect the working

relationship between the Government and industry. The Program Management Course provides 27 hours of classroom instruction in this functional area. Subjects offered in this functional area include:

- Cost Accounting for Government Contracts
- Financial Analysis
- Detailed Cost Estimating
- Industrial View of Proposal Management (Syllabus; Program Management Course, 1993, p. 3 and p. 12)

(3) Contract Management. The Contract Management functional area helps students develop a basic understanding of the systems acquisition contracting process. This functional area emphasizes the role of program management personnel in preparing and managing contracts. The Program Management Course provides 29 hours of classroom instruction in this functional area. Subjects covered by the Contract Management functional area include:

- Planning For Contracted Activities & Systems Contracting
- Source Selection
- Contract Administration
- Subcontract Management (Syllabus; Program Management Course, 1993, p. 3 and p. 12)

(4) Cost/Schedule Management. The Cost/Schedule Management functional area provides students with the concepts and techniques for managing major acquisition contracts in terms of cost and schedule. The students learn to assess the impact of reported variance through the use of basic analytical techniques. The Program Management Course provides 13 hours of classroom instruction in this functional area. Subjects included in this functional area include:

- Performance Measurement Baseline Management
- Cost/Schedule Surveillance Activities
- Analysis of Performance Management
- Office of the Secretary of Defense (OSD) Interest in Performance Management (Syllabus; Program Management Course, 1993, p. 3 and p. 13)

(5) Funds Management. The Funds Management functional area teaches students how to effectively estimate the resources required for an acquisition program and introduces students to the Planning, Programming, and Budgeting System (PPBS). The Program Management Course provides 32 hours of classroom instruction in this functional area. This functional area includes the following subjects:

- Developing Program Budget
- Program Funding Requirements Case Study

- Cost Analysis of Development Programs
- Resource Allocation in DoD, Cost Analysis (Syllabus; Program Management Course, 1993, p. 4 and p. 14)

(6) Logistics Support. The Logistics Support functional area enhances student's awareness of system supportability issues. It addresses Integrated Logistics Support (ILS), reliability, availability, and maintainability with regards to system design. The Program Management Course provides 17 hours of classroom instruction in this functional area. This area includes the following subjects:

- ILS Fundamentals
- ILS in Contracting
- Reliability and Maintainability
- Logistics Support Analysis (Syllabus; Program Management Course, 1993, p. 4 and p. 14)

(7) Managerial Development. The Managerial Development functional area allows students to evaluate their own managerial competencies which, in turn, will strengthen their effectiveness as members of a total quality management team. This functional area focuses on the roles of human skills, ethical values, and team building in program management. The Program Management Course provides 34 hours of classroom instruction in this functional area. Subjects taught in this functional area include:

- Human Skills and Program Management
- Managerial Style and Temperament
- Team Building I and II
- Work-Oriented Counseling
- Creative Problem Solving (Syllabus; Program Management Course, 1993, p. 4 and p. 15)

(8) Manufacturing Management. The Manufacturing Management functional area provides students with the fundamental concepts and management tools used to plan for and deliver defect-free hardware. The Program Management Course provides 15 hours of classroom instruction in this functional area. Subjects in this functional area include:

- Manufacturing Management Principles
- Industrial Base
- Manufacturing Product Assurance
- Quality Manufacturing Characteristics (Syllabus; Program Management Course, 1993, p. 4 and p. 15)

(9) Principles of Program Management. The Principles of Program Management functional area teaches students how to effectively apply management tools and techniques to the acquisition process. This functional area allows students to integrate the fundamentals of acquisition policy in order to create their own acquisition strategy and program schedule. The Program Management Course provides 15

hours of classroom instruction in this functional area. This functional area includes the following subjects:

- Program Management Functions
- Defense Industry Program Management
- Qualitative and Quantitative Problem Solving
- Program Planning and Control Relationships (Syllabus; Program Management Course, 1993, p. 5 and p. 16)

(10) Systems Engineering. The Systems Engineering functional area exposes students to the systems engineering process and to the requirements for developing, producing, and deploying a system. The Program Management Course provides 25 hours of classroom instruction in this functional area. Courses in this functional area include:

- System Engineering planning
- Requirements Analysis
- Configuration Management
- Risk Management (Syllabus; Program Management Course, 1993, p. 5 and p. 16)

(11) Software Management. The Software Management functional area provides students with a basic understanding of the principles for managing the development of Mission Critical Computer Resources (MCCR). This functional area exposes students to basic computer software

terminology, DoD policies and standards, and the DoD software development cycle. The Program Management Course provides 17 hours of classroom instruction in this functional area. Subjects offered under this functional area include:

- Introduction to Software Acquisition Management
- Software and Systems Life Cycle
- Software Risk Management
- Software Test and Evaluation (Syllabus; Program Management Course, 1993, p. 5 and p. 16)

(12) Test and Evaluation. The Test and Evaluation functional area addresses the DoD Test and Evaluation requirements for fielding a weapon system. This functional area provides students with the fundamentals of DoD Test and Evaluation policy, and current issues that are effecting the way DoD currently conducts testing. The Program Management Course provides 16 hours of classroom instruction in this functional area. Subjects in this functional area include:

- DoD Test and Evaluation Organization
- DoD Test and Evaluation Policy
- Test and Evaluation Planning
- Test and Evaluation Master Planning (Syllabus; Program Management Course, 1993, p. 5 and p. 16)

b. Integrated Subjects

Once the students have learned the fundamentals of each functional area, the Program Management Course combines these functional areas through the use of integrated subjects. The case studies and exercises used during this portion of the course are designed to allow students to apply the fundamentals learned in each of the functional areas to a wide range of programmatic, political, and management issues. The Program Management Course provides 40 hours of classroom instruction dealing with integrated subjects. The integrated subjects portion of the curriculum includes the following subjects:

- Long Lead Item
- Transition to Production
- Negotiation
- Integrated Management Exercise (Syllabus; Program Management Course, 1993, p. 6 and p. 14)

c. Grand Slam Exercise

The Grand Slam Exercise is used by DSMC as a capstone course using simulations. These simulations allow the students to integrate all of the functional areas and integrated subjects into a realistic weapon system acquisition scenario. The students are required to manage a weapon system from its inception through the engineering and manufacturing development phase of the acquisition life cycle. The students

use the Grand Slam Exercise to put into practice what they have learned about integrated acquisition management discipline. Students participate in a total of 62 hours of simulated exercises as part of the Grand Slam Exercise. (Syllabus; Program Management Course, 1993, pp. 7-8)

3. Summary of the DSMC Program Management Course

The primary goal of the Program Management Course is to train middle level Acquisition Corps professionals to successfully manage a DoD acquisition program. It achieves this goal through developing the student's understanding of the acquisition functional areas, integrated subjects, and the Grand Slam capstone exercise. The Program Management Course emphasizes a fundamental knowledge of acquisition management, while fostering the individual's ability to make sound judgment, exercise initiative, and use common sense. (Ball, 1981, pp. 5-16)

C. THE NPS SYSTEMS ACQUISITION MANAGEMENT CURRICULUM (816)

1. Overview of the Acquisition Management Curriculum

The Systems Acquisition Management Curriculum was established at NPS in 1992. Its primary objective is to provide

> ... selected officers and Government civilians an advanced education in the fundamental concepts, methodologies, and analytical techniques necessary for the management of major defense systems. (Systems Acquisition Management Brochure, 1992, p. 2)

The 816 Curriculum is a 21 month course which culminates with students being awarded a Master of Science degree in Management, with a subspecialty in Systems Acquisition Management. The 816 Curriculum offers students a graduate course of study which is tailored to Defense acquisition management and the fundamental principles needed to understand the acquisition environment. The curriculum focuses on providing students with an education in both "technical and management areas as set forth in the Defense Acquisition Workforce Improvement Act." (Memorandum; Request for Determination Regarding Comparability, 1991, p. 1)

2. Systems Acquisition Management Course Structure

The Systems Acquisition Management Curriculum is formally divided into five areas: fundamental courses, graduate core courses, graduate subspecialty courses, curriculum options, and a thesis requirement.

Courses taught as part of the 816 Curriculum follow an instructional methodology of lectures and discussions, seminars, and simulations.

a. Lectures and Discussions

The majority of the classes taught as part of the 816 Curriculum use a lecture and discussion format. On average, students will attend over 190 hours of course lectures during a quarter. The lecture and discussion format provides students with a strong foundation of the individual subjects. Courses then use case studies and practical exercises to reinforce the knowledge gained by students during the lectures.

b. Seminars

Each quarter, all of the 816 students are required to attend 22 hours of program management seminars. These seminaries are designed to expose students to the "real world" problems found in the field of DoD acquisition. The primary purpose of these seminars is to allow students the chance to interact with senior Government and industry officials. Additionally, these seminars facilitate the discussion of acquisition related research.

c. Simulations

The Program Management Exercise is a computer simulated program similar to the Grand Slam exercise taught by DSMC in the Program Management Course. The Program Management

Exercise is designed to introduce students to issues that are normally encountered throughout the life cycle of an acquisition program. This course is offered to students in their sixth quarter, and allows students to integrate their knowledge of the acquisition processes into a "real world" scenario. Students receive 22 hours of classroom instruction and 12 hours of computer lab time during the Program Management Exercise.

The following is an overview of the 816 Curriculum using the Program Management Course structure provided earlier in this chapter.[13] (Systems Acquisition Management Curriculum 816; Course Descriptions, 1993, p. 1, and Memorandum; Request for Determination Regarding Comparability, 1991, Enclosure 4, pp. 1-2)

- Acquisition Policy and Environment. Courses offered in this functional area include: Systems Acquisition and Project Management, and Program Management Policy and Control. The 816 Curriculum provides 65 hours of classroom instruction in this functional area.
- Contractor Financial Management. The 816 curriculum offers the following courses under this functional area: Financial Management in the Armed Forces, Management Accounting, Financial Accounting, and Economic Decision Making. The 816 Curriculum provides 24 hours of classroom instruction in this functional area.
- Contract Management. Courses offered in this functional area include: Contracts Management and Administration, and Systems Acquisition and Project Management. The 816 Curriculum provides 26 hours of classroom instruction in this functional area.

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[13]Courses may be listed under more than one functional area.

- Cost/Schedule Management. The 816 curriculum offers several courses which deal with this functional area, they include: Financial Management in the Armed Forces, Test and Evaluation, Program Management Policy and Control, and Contracts Management and Administration. The 816 Curriculum provides 31 hours of classroom instruction in this functional area.

- Funds Management. Courses offered in this functional area include: Policy Analysis, Public and Budgeting, Program Management Policy and Control, and Cost Estimation (optional). The 816 Curriculum provides 63 hours of classroom instruction in this functional area.

- Logistics Support. Courses offered to students in this functional area include: Operations Research for Management, Quality Assurance and Reliability Methods, Logistics Engineering, Program Management Policy and Control. The 816 Curriculum provides 61 hours of classroom instruction in this functional area.

- Managerial Development. The 816 offers the following courses in this functional area: Managerial Communication Skills, Organization and Management, Management Policy, Program Management Policy and Control, Production Management (optional), and Personnel Management Processes (optional). The 816 Curriculum provides 64 hours of classroom instruction in this functional area.

- Manufacturing Management. Courses offered students in this functional area include: Logistics Engineering, Quality Assurance and Reliability Methods, and Production Management (optional). The 816 Curriculum provides 34 hours of classroom instruction in this functional area.

- Principles of Program Management. The 816 curriculum offers the following courses in this functional area: Systems Acquisition and Project Management, Management Policy, Program Management Policy and Control, Operations Research for Management, and Statistics for Science and Engineering. The 816 Curriculum provides 60 hours of classroom instruction in this functional area.

- Systems Engineering. The 816 curriculum offers the following courses in this functional area: Quality Assurance and Reliability Methods, Logistics Engineering, Management Information Systems, and Systems Engineering Management. The 816 Curriculum provides 69 hours of classroom instruction in this functional area.

- Software Management. Courses offered in this functional area include: Management Information Systems, Software Acquisition Management, and Software Design (optional). The 816 Curriculum provides 47 hours of classroom instruction in this functional area.

- Test and Evaluation. The 816 curriculum offers students the following courses in this functional area: Test and Evaluation, Systems Acquisition and Project Management, and Program Management Policy and Control. The 816 Curriculum provides 34 hours of classroom instruction in this functional area.

- Integrated Subjects. The 816 curriculum offers the following courses as integrated subjects: Systems Acquisition and Project Management, Program Management Policy and Control, Test and Evaluation, Contracts Management and Administration, Financial Management in the Armed Forces, and Operations Research for Management. The 816 Curriculum provides 45 hours of classroom instruction on integrated subjects.

In short, as Dr. Lamm stated, the Systems Acquisition Management Curriculum provides students with a

> ... graduate education [that] not only [teaches students] how to do something, or what something is, but ... the reasoning and rationale behind why something exists as well as the ability to do problem solving and decision making. (Lamm, 1994 Interview)

3. Systems Acquisition Management Comparability with the Program Management Course

The Defense Acquisition Workforce Improvement Act requires members of the Acquisition Corps to complete the Program Management Course or its equivalent prior to being selected as a program manager. Prior to 1991, there were no equivalent programs to the Program Management Course which fulfilled this requirement. On November 8, 1991, NPS submitted a request that the Systems Acquisition Management Curriculum be granted comparability to the Program Management Course. The faculty at NPS believed that the students participating in the 816 Curriculum were meeting all of the educational requirements of the Program Management Course. A comparison of the Systems Acquisition Management Curriculum and the Program Management Course is provided in Table IV.

The NPS Systems Acquisition Management Curriculum was granted comparability to the Program Management Course in August 1992. The faculty of DSMC and NPS work together on a regular basis to ensure that this comparability is maintained. (Lamm, 1994, Interview)

D. SUMMARY

The Program Management Course and the Systems Acquisition Management Curriculum form the centerpiece of the Defense Acquisition University's educational program. They are designed to provide future program managers with the

TABLE IV
PROGRAM MANAGEMENT COURSE
AND SYSTEMS ACQUISITION MANAGEMENT
COMPARISON (1991 DATA)

REVIEW AREA	PMC HOURS	816 HOURS
LECTURE/SEMINAR	471	1,056
WRITTEN EXAMINATIONS	27	102
THESIS	0	176
COMPUTER LITERACY	2	22
INDUSTRY PROGRAM/ MILITARY USER PROGRAM/ PLANT VISITS	37	154
GUEST LECTURERS	15	63
ADMINISTRATIVE ACTIVITIES	64	50
TOTAL HOURS	616	1,621

Source: Memorandum; Request for Determination Regarding Comparability, 1991, Enclosure 2, p. 1

educational foundation needed to successfully manage a Defense acquisition program. Both curricula focus on providing students with a fundamental knowledge of acquisition management. Additionally, these programs focus on developing each individual's ability to integrate this knowledge in order to solve the programmatic, political, and managerial issues found in Defense systems acquisition.

VI. METHODOLOGY

A. OVERVIEW

In developing the methodology for this research, four questions needed to be answered. These questions were:

- How does one determine which competencies are important to program managers?
- How does one identify successful program managers?
- How does one select program managers to be interviewed?
- How does one evaluate the Army's educational programs for future program managers?

This chapter will review each of these questions in detail.

B. DETERMINING WHICH COMPETENCIES ARE IMPORTANT TO PROGRAM MANAGERS

In developing this research, the key question was how to determine the relative importance of the competencies established by the initial Defense Systems Management College (DSMC) study to program managers of today. Surveying current Army ACAT-I program managers seemed to be a reasonable approach toward answering this question. This approach provided data which reflected the general level of awareness of the roles that these competencies play in program management. To gain this insight, all 35 Army ACAT-I program

managers were asked to take part in this research. Surveys were mailed to the 34 program managers who agreed to participate in this study.

The DSMC competency survey was used as a foundation for the survey administered to support this study. The survey listed the 27 competencies and their respective definitions that were used in the original DSMC study. The survey first asked the respondents to select nine characteristics that they felt were most important to being an "ideal" program manager. Second, the survey asked respondents to select the nine characteristics which they felt were least important to being an "ideal" program manager. The survey then asked the respondents to select the six areas that they felt additional education and training programs would benefit the greatest number of program mangers. The final portion of the survey was designed to provide demographic data on the respondents.[14]

Prior to distributing the competency survey, the original DSMC competency survey was administered to several faculty members of the Systems Management Department of the Naval Postgraduate School; including two former program managers. As a final logic check, the survey was administered to five students to insure that the questions and survey format were clear from a laymen perspective. As a result of these test

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[14]The job competency survey used to support this research is provided in Appendix A.

surveys, the format of the original DSMC study was modified so that the competency definitions were consolidated on one page, while the competency ranking section was consolidated on another. This consolidation allowed the survey recipient to evaluate each of the competencies without having to go back and forth over a four page listing of competencies and their respective definitions.

C. IDENTIFICATION OF SUCCESSFUL PROGRAM MANAGERS

The next question was how to identify the successful program managers. The managerial oversight of the Army's 35 ACAT-I programs are the responsibility of 7 Program Executive Officers (PEO) and their deputies. In order to identify successful program managers, these 14 men were given the competency survey. After they completed the survey, they were asked to identify those ACAT-I program managers that best fit the nine most important characteristics that they selected as describing the ideal program manager. In order to facilitate candid responses, the PEOs[15] were guaranteed that their individual responses would be kept confidential.

The PEOs were allowed to nominate as many program mangers as they wished, but were asked to be judicious in their selection process. Those program managers identified by the

[15]For the purposes of this report, the term PEO will refer to both the program executive officers and their deputies.

PEOs or their deputies were considered to be successful program managers for the purpose of this study. Since the PEOs manage all of the Army's ACAT-I programs, the program managers not selected formed a second category - average program managers.[16]

D. PROGRAM MANAGER INTERVIEW SELECTION

The next question was how to develop an insight into how program managers use these competencies. A logical approach to this problem was to interview program managers. Since it was infeasible to interview all of the ACAT-I program managers, it seemed reasonable to interview those program managers who were nominated by more than one PEO or his deputy. In order to keep the level of confidentiality promised to the PEOs, the program managers were informed that they were selected because a survey of PEOs showed that they might be able to provide some insight into program manager competencies. The program managers who were interviewed were not told that they were being interviewed because they had been selected as successful program managers. All seven of the program managers who fell into this category agreed to be interviewed.

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[16]It is important to understand that not being selected as a successful program manager did not mean that these program managers were poor performers. It was assumed that anyone selected to become a program manager must be competent, and if he was not capable of executing his mission he would be relieved.

To facilitate the interview process, a copy of the interview questions were forwarded to each program manager prior to the interview date.[17] The interviews were conducted using video tele-conferences and face-to-face interviews. The interviews were recorded audio-visually. The audio tapes were later transcribed to facilitate more detailed analysis. The interviewees were asked to describe how specific competencies have affected the way they manage their programs in terms of the program's external and internal environment, as well as program performance and productivity. Additionally, they were asked to provide examples where appropriate. They were then asked if they thought specific competencies could be taught, or if they were inherent skills. The final portion of the interviews allowed the program managers to reflect on their own careers, and provide some insight into what educational and job related experiences were most helpful in becoming a program manager.

E. EVALUATING EDUCATIONAL PROGRAMS OF FUTURE PROGRAM MANAGERS

In evaluating the Army's education programs used to develop future program managers, a two fold approach was needed. First, a method needed to be selected for determining the level of awareness that future program managers had in regards to the DSMC competencies. Second, a method for

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[17]The questions used during the program manager interviews are provided in Appendix B.

evaluating the extent that the Army's educational system integrated these competencies into both the DSMC Program Management Course and the NPS Systems Acquisition Management curricula was needed.

The awareness level of future program managers was measured using the same competency survey administered to program managers and the PEOs. The competency survey was administered to the 49 Systems Acquisition Management students at NPS, and the 123 Army students currently enrolled in the DSMC Program Management Course.

The evaluation of the extent of competency integration at NPS was done using a Delphi process which drew on the educational experiences of seven students.[18] This approach seemed appropriate because it allowed the NPS curriculum to be evaluated by the students who had taken the courses and not the faculty which had developed the course. This non-attribution approach lead to a series of free flowing discussions in which each of the core curriculum courses were evaluated in light of the DSMC competencies. Students only evaluated the courses which they had taken. Since many of the curriculum options had not been taken by more then one member of the Delphi panel, it was decided to limit the scope of the

[18]The Delphi panel used to evaluate the NPS Systems Acquisition Management curriculum consisted of two students in their seventh quarter, three students in their fifth quarter, and two students in their third quarter.

panel's work to the core curriculum courses offered under the Systems Acquisition Management curriculum.

The evaluation of the Program Management Course was based on the results of the research conducted in support of the original DSMC competency study. Since there have been no significant changes in the DSMC curriculum to date, this seemed to be a logical approach. The original DSMC study reviewed the lectures, cases studies, scenarios, and video tapes used throughout the course. The results of the DSMC curriculum review will be presented in Chapter V.

F. SUMMARY

This study uses the DSMC competency survey as a foundation. The DSMC survey lists 27 competencies and their respective definitions. Respondents were asked to select nine of the most important competencies for an ideal program manager, and nine of the least important.

During the field research for this study, Program Executive Officers and their deputies were surveyed, and asked to nominate successful program managers. Subsequently, the survey was administered to program managers, students enrolled in the DSMC Program Management Course, and students from the NPS Systems Acquisition Management Curriculum. After the surveys were completed, successful program managers were interviewed in order to gather further insight into the key program manager competencies.

V. ANALYSIS AND DISCUSSION

A. OVERVIEW

This chapter will present the results of the Program Manager Competency Survey. The first section will present the survey demographics. The next section will discuss the competencies of the "ideal" program manager. The remainder of this chapter will review the acquisition students' responses to the survey, developmental areas for future program managers, and an evaluation of DSMC and NPS ability to integrate these competencies into their respective curricula.

B. SURVEY DEMOGRAPHICS

The Program Manager Competency Survey was one of the key research tools used to support this study. It was given to Program Executive Officers, Program Managers, and acquisition students. The survey was administered to over 220 acquisition personnel with an 80% response rate. Table V shows the number of individuals surveyed by survey category, and their respective response rates.

Initially, the Program Manager Competency Survey was administered to Army Program Executive Officers and their deputies. These individuals were asked to identify those program managers who they thought best fit the competencies that they had identified as being most important to "ideal"

TABLE V
PROGRAM MANAGER COMPETENCY SURVEY DEMOGRAPHICS

	SAMPLE POPULATION	NUMBER OF RESPONSES	PERCENT OF RESPONSES
PROGRAM EXECUTIVE OFFICERS	14	12	86%
PROGRAM MANAGERS	34	25	74%
ACQUISITION STUDENTS	174	140	80%
TOTAL	222	177	80%

program managers. They selected 18 of the 34 Army Program Managers as being successful and 16 program managers as average. Of the 25 program managers who responded to the survey, 11 were successful and 14 were average.

Based on the results of the Program Manager Competency Survey, the typical Army program manager is a male, has 12 years of acquisition related experience, and holds the rank of Colonel in the U.S. Army. The typical program manager has served as a product manager for two years, and worked on a program manager's staff for three years. He has an undergraduate degree in engineering, and a graduate degree in engineering or business. Additionally, he has attended the DSMC Program Management Course and the DSMC Executive Refresher Course.

C. "IDEAL" PROGRAM MANAGER COMPETENCIES

The Program Manager Competency Survey asked each respondent to review the 27 competencies from the original

DSMC survey. They were asked to select the nine most important characteristics of the "ideal" program manager, and the nine least important characteristics. In analyzing the data from the surveys, the following weights were applied to each response:

- Most Important Characteristic = 3
- Important Characteristic = 2
- Least Important Characteristic = 1

Based on these weighted data, a mean interval scale was developed. This interval scale is shown in Figure 5. Those competencies with a mean score of 2.33 or higher were identified as being among the most important competencies for an "ideal" program manager. Those competencies with a mean score of 1.66 or less were identified as being among the least important competencies of an "ideal" program manager.[19] Figure 5 reflects several significant results of the Program Manager Competency Survey.

1. Core Program Manager Competencies

Of the original 16 program manager competencies identified in the DSMC study, 13 were rated by both successful and average program managers as being important or most

[19]Successful and Average program manager data from the Program Manager Competency Survey data are presented in Appendix C.

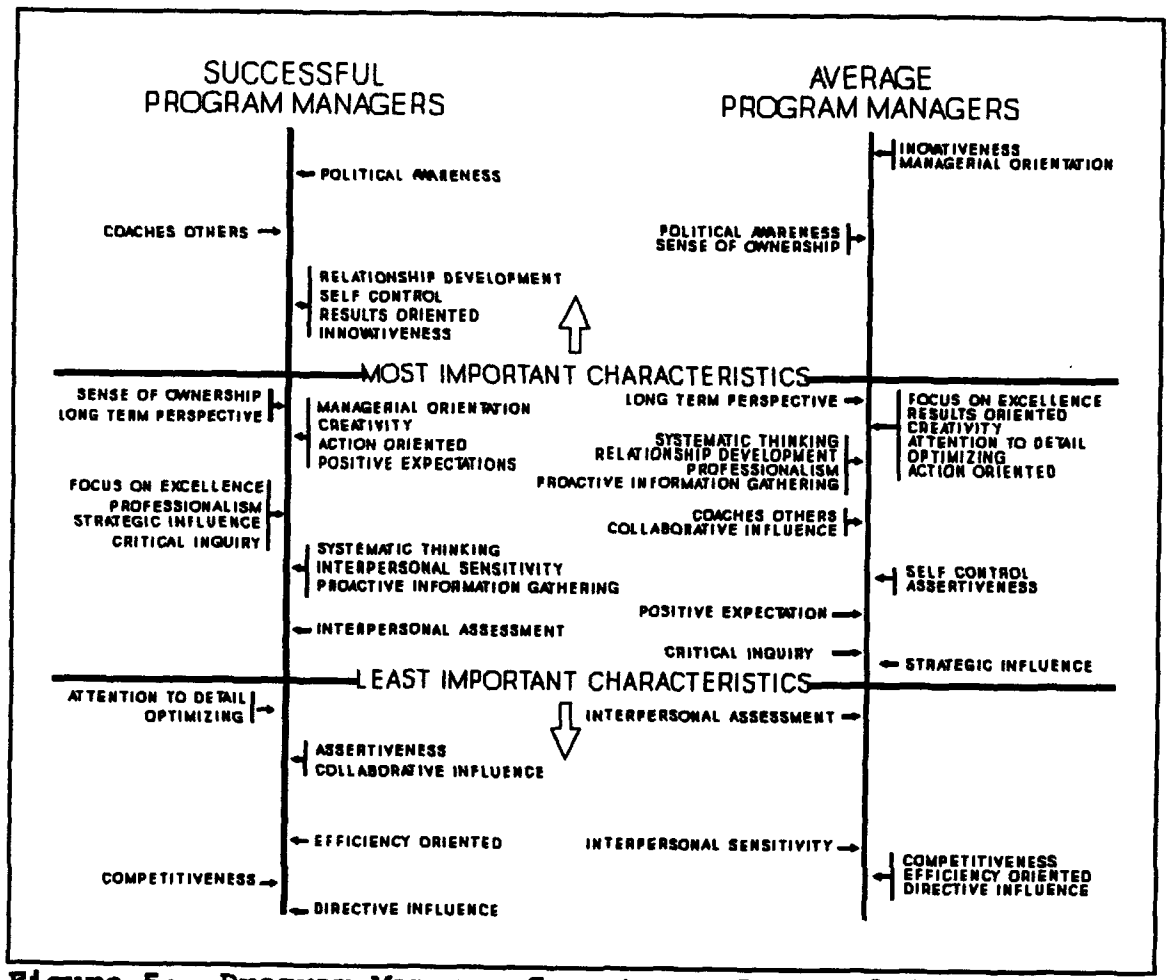

Figure 5: Program Manager Competency Interval Scale.

important characteristics of the "ideal" program manager. These competencies include:

- Political Awareness
- Relationship Development
- Results Oriented
- Innovativeness
- Sense of Ownership
- Long Term Perspective

- Managerial Orientation
- Action Oriented
- Focus on Excellence
- Strategic Influence
- Critical Inquiry
- Systematic Thinking
- Proactive Information Gathering

2. Successful Program Manager Competencies

Two of the competencies listed above, Developing Relationships and Results Oriented, were listed as being among the most important competencies by successful program managers and as important competencies by average program managers. Additionally, two of the nine "dummy" competencies used in original DSMC survey were rated by successful program managers as being among the most important competencies. These "dummy" competencies were:

- Coaches Others
- Self Control

The remaining seven "dummy" competencies were rated by successful and average program managers as among the important or least important characteristics of an "ideal" program manager. Finally, 1 of the original 16 competencies, Interpersonal Assessment, was rated by successful program

managers as being an important characteristic, but was rated by average program managers as being among the least important. The ranking of these competencies by successful program managers in a category higher then they were ranked by average program managers indicates that these competencies seem to distinguish outstanding program managers.

3. Least Important Competencies

Two of the original 16 program manager's competencies were rated by successful program managers as being among the least important characteristics, while the average program managers rated these competencies as important. These competencies are listed below:

- Optimizing
- Assertiveness

While the interval ranking of Assertiveness is consistent with the findings of the original DSMC study, the interval ranking of Optimizing is significantly lower.[20] The reasons for these low rankings will be discussed later in this chapter.

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[20]In the original DSMC survey Assertiveness was ranked 24th out of 27 competencies, and Optimizing was rated 5th out of 27 competencies. (Cullen and Gadeken, 1990, p. 4.8)

D. REVISED PROGRAM MANAGER JOB COMPETENCY MODEL

These results indicate that all program managers share 11 of the original DSMC competencies. Additionally, there are five competencies which seem to distinguish outstanding program managers from the other program managers. Of these five competencies, three were from the original DSMC competency model, and two were from the DSMC "dummy" competencies. Based on this evaluation, the 16 competencies of the program manager's job competency model are listed below:

- Political Awareness
- Coaches Others (*)[21]
- Relationship Development (*)
- Self Control (*)
- Results Oriented (*)
- Innovativeness
- Sense of Ownership
- Long Term Perspective
- Managerial Orientation
- Action Oriented
- Focus on Excellence
- Strategic Influence
- Critical Inquiry

[21]Those competencies which distinguish outstanding program managers are indicated by an (*).

- Systematic Thinking
- Proactive Information Gathering
- Interpersonal Assessment (*)

Based on the data obtained from both successful and average program managers, it is these competencies which distinguish the Army's best major program acquisition managers.

E. EVALUATION OF PROGRAM MANAGER COMPETENCIES

In order to gain further insight into why these competencies were ranked the way they were, interviews were conducted with the seven successful program managers who were selected by more than one Program Executive Officer. This section will examine each of these competencies in light of those interviews.

1. Political Awareness

For the purpose of this study, Political Awareness was defined as: *Knows who influential players are, what they want, and how best to work with them.* Both successful and average program managers rated this competency as being among the most important.

The program managers interviewed agreed that politics affect every aspect of a program. Whether this is right or wrong, it is the environment in which program managers must operate. As one program manger put it:

> If you are not politically astute about the Pentagon, Congress, or other Government agencies, you will never understand their agenda, your program will fail, and you will never know why it failed.

All of the Army's major acquisition programs will have political support from both inside and outside of the Army. It is essential that program managers know where that support is, as well as where it is not.

Program managers learn very quickly how politically sensitive their programs are. It is important for a new program manager to understand that trade-offs have been made at the Army, DoD, and Congressional levels just to keep their program viable. As one program manager stated: "You may have to concede many times on small issues just to keep your program alive; lose the battle to win the war."

2. Developing Relationships

The Program Manager Competency Survey defined Developing Relationships as follows: *Spends time and energy getting to know program sponsors, users, and contractors.* Developing Relationships was rated among the most important competencies by successful program managers, and as an important competency by average program managers.

A program manager has daily interfaces with a variety of people from outside his organization. Each of these people will have their own agenda, priorities, and resource constraints. To be successful, a program manager must be able "...to pick up a phone, explain what [he] needs done, and

because of the relationship [he has] established with these folks, have them respond."

The program managers that were interviewed stressed that building relationships does not happen overnight. A program manager must take the time to visit and cultivate both old and new relationships with key personnel affecting their program. These key personnel include people from the Pentagon, the test community, contractors, and most importantly the user. Many program managers stated that they were able to get "work-arounds" approved, dollars reprogrammed, and schedules moved up, just by working the relationships that they had established with these various agencies. As one program manager stated:

> This may sound like the "good-old-boy" network, which it is, but the Army is personnel and staff intensive, so interpersonal relationships, the ability to work with others, is a must.

3. Results Oriented

The Program Management Competency Survey defined Results Oriented as: *Evaluates performance in terms of accomplishing specific goals or meeting specific standards.* Results Oriented was rated among the most important competencies by successful program managers, and as an important competency by average program managers.

During the interviews, program managers explained that one of the most important parts of their job was making their program work and getting it fielded. As one program manager

stated: "Everything you do [as a program manager] has got to be focused on results, results, results." To get a program fielded, program managers must "put marks on the wall," otherwise, events will dictate the course of the program. A major problem faced by program managers today is that the Army tends to

> .... sit around during program reviews, reviewing papers and briefing slides rather than putting the system out into the field with the right soldiers and putting it through its rigors.

By focusing on results, the program manager has a way of setting priorities and measuring the results of his program against a specific standard.

4. Innovativeness

The Program Manager Competency Survey defined innovativeness as: *Champions and pushes new ways of meeting program requirements.* Both successful and average program managers rated this competency as one of the most important ones.

During the interview process, several program managers stated that there were no cookbook answers in the acquisition business, and that if there were, the Army wouldn't need them. The program mangers agreed that they were hired to "manage unique situations effectively." One program manager related the following example:

> I had a critical component, called a transceiver, that I knew was high risk. I decided to have two different companies develop two different technologies to solve the

> problem. In the course of a year, I had cost overruns with both of them, and neither part worked. Now the textbook said I should have been successful because I went to two competing vendors, and used two separate technologies to develop a high risk component. I failed. Now what? We took the parts that worked from one vendor and combined them with the parts from the other vendor and we went into co-development. Five years ago, both companies would have told us to "pound sand." But we used the fact that the defense industrial base was declining to convince the two companies that half [a defense contract] was better than nothing. The bottom line; it worked.

It is important for program managers to remember that the solution that worked yesterday may not work tomorrow. Even if you have the same set of circumstances, the variables will be different. What worked on Program "X" may not work on Program "Y". The primary responsibility of the program manager is to find out what will work, and do it.

5. Sense Of Ownership/Mission

The Program Manager Competency Survey defined Sense of Ownership as: *Sees self as responsible for the program; articulates problems or issues from a broader organizational or mission perspective.* Sense of Ownership was rated as an important competency by successful program managers, and among the most important competency by average program managers.

Sense of Ownership is important from the perspective that one of the primary roles of the program manager is to be his program's number one advocate and cheerleader. One program manager put it this way:

> If a program manager is not out there leading the charge for his system, then he is probably doing a disservice to the taxpayer and the soldier.

The environment that program managers face today is one that is focused on the budget. If the program manager is not a strong advocate for his program, then "other people will suck [his] budget monies away."

A negative aspect of this competency is that Sense of Ownership might imply, to some people, that the program is personally the program manager's. This is a misconception that may lead to serious misunderstandings when dealing with other agencies and Congress. A program manager should never become personally attached to his program. He must keep the attitude that "... if the Army says that they don't want the program, I, personally, don't want it." This allows him to establish the credibility of his program based on its capabilities without others viewing his actions as personal or vindictive.

So the program manager must be committed to selling the Army's program, not his personal program. In today's budget environment, if the program manager does not have ownership of the Army's program, he will not be able to build enough support to get the program fielded.

6. Long Term Perspective

The Program Manager Competency Survey defined Long Term Perspective as: *Anticipates and plans for future issues and problems.* Both successful and average program managers rated this competency as being important.

During the interview process, most program managers agreed that the most commonly used tool for focusing on a Long Term Perspective was the DoD six year budget process. In February of 1994, program managers were trying to influence budgets for 1996 through the year 2000. One program manager stated that:

> If I had a [financial] problem today I couldn't fix it in 1994 if my life depended on it, without severe turbulence, because I don't have the money to do it. The 1995 budget is essentially locked ... it would take a miracle to change it now. So 1996 is your first year to impact. Without a long term perspective I can't do that.

According to current program managers, what distinguishes a program manager from his peers is his ability to identify a crisis that will not occur until two years from now. Successful program managers must be able to shape events so that the crisis is manageable when it does occur.

7. Managerial Orientation

The Program Manager Competency Study defined Managerial Orientation as: *Gets work done through the efforts of others.* Managerial Orientation was rated as an important competency by successful program managers, and among the most important competencies by average program managers.

Program managers don't have time to do everything themselves, and many felt that their subordinates can do many specific tasks better than they can. They felt that their job was to "steer the ship," keep their action officers "heading

in the right direction," and then empowering their subordinates to complete the mission.

One of the key aspects of Managerial Orientation is that it forces program managers to take the time to understand the strengths and weaknesses of their personnel. By understanding his subordinates capabilities, the program manager is able to place those personnel into positions that maximize their strengths and minimize their weaknesses. By empowering their subordinates to accomplish specific missions, the program manager has the time to focus his efforts on resolving the major problems before they become crises.

Several of the program managers stated that they had seen their peers fall into the trap of doing a minor task themselves because they thought they could do it better than their subordinates could. This typically resulted in the subordinates turning to the program manager to solve all of their problems, rather then solving them on their own. If a program manager spends his time doing tasks that other people can do for him, he will not have the time to manage his overall program.

8. Action Oriented

The Program Manager Competency Survey defined Action Oriented as: *Reacts to problems energetically and with a sense of urgency.* Both successful and average program managers rated this competency as being important.

Many of the program managers that were interviewed felt that their program's performance was directly tied to how action oriented they are. To quote one program manager: "You don't need me if I'm not action oriented, because I'm paid to respond to a crisis." The very nature of the program manager job means that he must deal with crisis on a day-to-day basis.

Most of the examples cited by program managers concerning this competency focused on dealing with crises which pertained to the program's budget. One program manager put it this way:

> When the Pentagon calls and says that you have two hours for an answer, they are not throwing "wolf bait". You have got two hours to get them an answer before the window of opportunity closes. If you don't respond, you have just lost the battle. Battles which normally equate to money.

The budget cycle is an ongoing process. Program Managers must ensure their personnel are anticipating problems and developing solutions before those problems become a crisis. As one program manager stated: "You cannot sit back and wait for a problem to fall on your desk. If you do, you don't belong in a program office."

9. Focus On Excellence

The Program Manager Competency Survey defined Focus on Excellence as: *Strives for the highest standards regardless of circumstance.* Both successful and average program managers rated this competency as being important.

Each program manager establishes certain standards for meeting his program requirements. These standards are developed within the constraints of cost, schedule and performance. Every decision made by the program manager is a trade-off. The program manager's task is to set the highest standards he can within that trade-off environment.

Many of the program managers felt that it was easy for people to say that they focus on excellence, but it was much harder to actually do it. The problem is that the world assumes there are excellent solutions to each set of problems. As one program manager stated: "I've never been in a situation in this business where there was an excellent solution. Everything is a trade-off." So program managers strive to provide the user and the taxpayer with the best product he can within the constraints of his program. To achieve these goals they focus their efforts on achieving as much as they can in terms of technical performance within the constraints of cost and schedule.

10. Strategic Influence

The Program Manager Competency Survey defined Strategic Influence as: *Builds coalitions and orchestrates situations to overcome obstacles and obtain support.* Both successful and average program managers rated this competency as being important.

Strategic Influence plays an important role in the external environment of a program. It affects how a program is funded, staffed, and fielded. One program manager explained it this way:

> In this command, everything is based upon interpersonal relationships. If [Tom] gives me a staff engineer to solve my problem, there will be a time when [Tom] needs something from me. I need to be able to influence him. A program manager is not a strategic influence because he's a program manager, other than the fact that he holds the money. He's a strategic influence because he's respected and he knows what he's doing.

Program Managers must learn right from the start that they can not get their program fielded by themselves. They must be able to build coalitions and partnerships, and be able to effectively use them to weigh in for their program when the time comes. The program manager's ability to build these coalitions will be tied to his ability to relate to people on a personal and professional basis. One program manager said that the key to building effective coalitions was to

> . . . come across as a sincere and honest person, yet willing to stand up for what you think is right, then they will probably be willing to compromise if you don't have a dogmatic approach to things.

11. Critical Inquiry

The Program Manager Competency Survey defined Critical Inquiry as: *Explores critical issues that are not being explicitly addressed by others.* Both successful and average program managers rated this competency as being important.

The program manager is responsible for understanding the political environment within which his program exists. His skill in understanding other people's agendas, building coalitions, and getting his program fielded depends on his ability to ask the hard questions "up front and early." It is this Critical Inquiry, asking the "what if" questions, that allows the program manager to discover the rationale behind certain answers. It is often the case that the program manager can gain more insight from understanding a rationale than from the answer itself.

12. Systematic Thinking

The Program Manager Competency Survey defined Systematic Thinking as: *Organizes and analyzes problems methodically.* Both successful and average program managers rated this competency as being important.

The acquisition of a major weapon system is a complex process. The program manager must not only coordinate the program through the phase that it is in now, but also plan for the program's growth throughout its life-cycle. The program manager must be able to methodically lay out a plan that will allow the program to get through a particular event as well as future events.

One program manager discussed how he had an outside contractor develop an automated project management support system for his program office. The system was based on inputs

from both his system and functional managers. When a new problem arose the program manager forced his program office to lay out the solution on paper. This established milestones for all of the activities that needed to happen in order to solve a particular problem. These milestones were placed into the database and used for subsequent tracking. This methodology allowed the program manager to track multiple events and manage his program without "losing the bubble."

13. Proactive Information Gathering

The Program Management Competency Survey defined Proactive Information Gathering as: *Systematically collects and reviews information.* Both successful and average program managers rated this competency as being important.

Most of the program managers agreed that proactive information gathering was an important part of being a successful program manager. Very few people are willing to come up and tell you that they have a problem. When something goes wrong, people will tend to "sit on the news, trying to make it better, or hoping the bad news will go away." It is up to the program manager and his staff to track their milestones and go out regularly and ask people how they are progressing to meet those milestones. Only by asking the tough questions does the program manager find out that he might miss a milestone before it is too late. One of the program managers put it this way:

> If a program manger is not proactive, he cannot get his job done. A program manager that is not out finding his problems is in the reaction mode. If I am reacting to a problem, it means it's already here. Already here means I better have the financial ability to do it, which means it's too late. If I'm reacting to a problem it means that it's probably already over my head.

In short, an effective program manager must find out about problems before they happen.

14. Interpersonal Assessment

The Program Manager Competency Survey defined Interpersonal Assessment as: *Identifies specific interests, motivations, strengths and weaknesses of others.* Interpersonal Assessment was rated as being important by successful program managers and among the least important competencies by average program managers.

Program managers must be cognizant of their own strengths and weaknesses as well as those of their subordinates. One program manager stated that the reason he hired a specific deputy was to balance his own weaknesses.

> I am weak in program management, budgeting, cost estimating and contract negotiating. He is an expert in those areas. This balances my own management style of management by walking around.

By understanding his subordinate's capabilities, the program manager will be better able to manage his program. He will understand when to "get out of their way" and when they are in danger of "focusing on a few trees in the forest." In short interpersonal assessment is the ability to "understand and work with people."

15. Self Control

The Program Manager Competency Survey defined Self Control as: *Remaining calm and unemotional in stressful situations.* Self Control was one of the two "dummy" characteristics that was rated among the most important competencies by successful program managers, and as an important competency by average program managers.

Several of the program managers that were interviewed said that they knew program managers who were "screamers" and who got angry very quickly. While this may work in the short term, those program managers will never be able to count on those people to "bend over backwards for them in the long term." Most program managers agreed that there is nothing wrong with losing your temper as long as you understand beforehand the consequences of that action. As one program manager stated: "There's nothing wrong with appearing to be upset, so long as you're not." Sometimes it is important for the program manager to get emotional about something just to convey a sense of urgency. The key to Self Control is understanding that when the program manager becomes an "screamer," he knows that he is acting.

16. Coaches Others

The Program Management Competency Survey defined Coaches Others as: *Providing others with performance feedback and suggestions to improve their capabilities.* Coaches Others

was the other "dummy" characteristic that was rated among the most important competencies by successful program managers, and as an important competency by average program managers.

As the Acquisition Corps grows into a profession, the ability of junior officers to learn from their superiors will help them avoid many of the mistakes of the past. If program managers do not train the people who will one day fill their positions, they are doing a disservice to the Acquisition Corps, the taxpayer, and the soldier. As one program manager stated about one of his junior officers: "This guy is going to be a program manager one day; it's my job to coach him and let him develop to his potential."

17. Optimizing

The Program Manager Competency Survey defined Optimizing as: *Makes decisions after carefully evaluating advantages and disadvantages.* Optimizing was rated as being among the least important competencies by successful program managers, and as being an important competency by average program managers.

Program managers evaluate advantages, disadvantages, and alternatives every time they review a production quality issue. On one side of the issue are the "engineer" types who want a "six sigma proof that the item will not fail." On the other side of the issue are the budget personnel who say that the program just doesn't have the funding to make those

changes. It is the program manager's responsibility to evaluate those trade-offs and make the hard decisions.

While most program managers acknowledged that Optimizing was an important competency, they felt that it was impossible to achieve an optimal solution to any problem. A program manager can prioritize solutions, but he can never really optimize all of the aspects of his program.

The acquisition process is essentially based on three fundamental components: cost, schedule, and performance. The program managers that were interviewed felt that there was no way that a program could maximize all three. Program managers are constantly required to make trade off decisions between cost, schedule, and performance. The program manager is responsible for determining when his program is "good enough." The only thing that is certain is that when a decision is made it will not be the optimal solution. Instead, that decision will be the best he can do given his resource constraints.

18. Assertiveness

The Program Manager Competency Survey defined Assertiveness as: *Takes or maintains positions despite anticipated resistance or opposition from influential others.* Assertiveness was rated being among the least important competencies by successful program managers, and as being an important competency by average program managers.

Most program managers agreed that it was good to be able to forcefully state their position, but in the face of opposition you must be willing to back off. To quote one program manager: "The person who stands there fighting is doomed to lose. There is just too much you don't know."

Program managers must deal with a multitude of Federal agencies to get their program fielded - each with their own agendas. Program managers must be tactful when they are asserting their position. A program manager who makes aggressive threats "may win the current battle, but he will probably lose the war."

A major criticism of program managers in general is that they are seen by "outsiders" as having natural biases towards their program. Their "positions are taken with blinders on and [they] may not understand the big picture." Program managers must be able to understand that they may not have all of the answers. If an expert in a given field tells a program manager that he is "dead wrong," and the program manager continues to push the issue, he will probably lose his credibility. The program manager must be able to choose his battles if his program is going to survive.

F. COMPETENCY AWARENESS OF FUTURE PROGRAM MANAGERS

In order to determine the level of awareness of future program managers with regards to the DSMC competencies, the Program Manager Competency Survey was administered to students

enrolled in the DSMC Program Management Course and the NPS Systems Acquisition Management curriculum. Of the 123 students surveyed in the Program Management Course, 113 responded. Of the 49 students surveyed in the Systems Acquisition Management curriculum, 25 responded. The data from these surveyed were scored in the same manner as the data from the successful and average program managers were scored.[22] The survey results from the acquisition students were then compared with the survey results of the successful program managers. A comparison of results of these two survey populations are presented in Figure 6.

Figure 6 reflects two significant results of an analysis of the data collected from successful program managers and acquisition students. First, both the successful program managers and the acquisition students rated 14 of the original DSMC competencies as being among the important or most important characteristics of an "ideal" program manager. These competencies included:

- Political Awareness
- Relationship Development
- Results Oriented
- Innovativeness
- Sense of Ownership

[22]Acquisition student data from the Program Manager Competency Survey are presented in Appendix C.

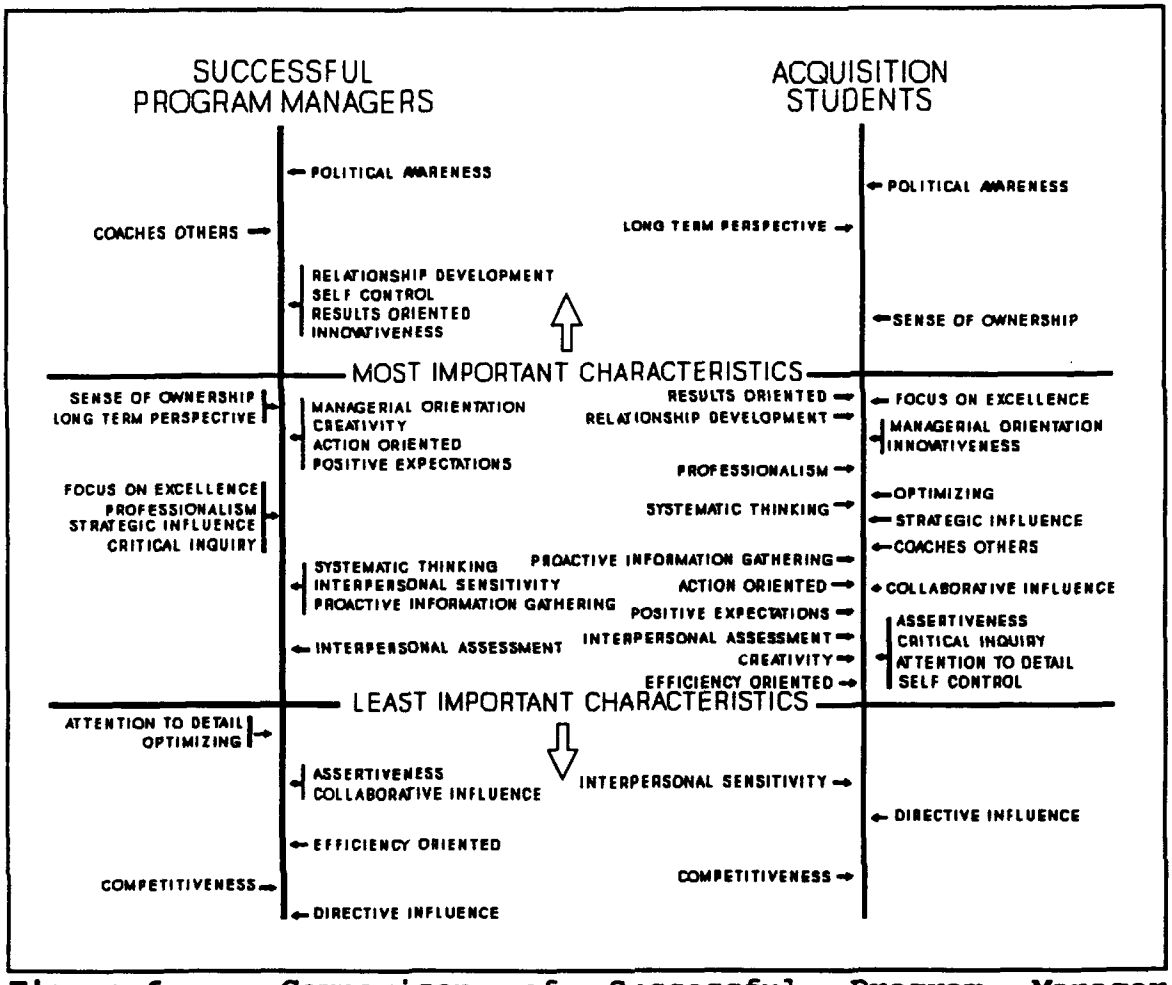

Figure 6: Comparison of Successful Program Manager Competencies with Acquisition Student Competencies.

- Long Term Perspective
- Managerial Orientation
- Action Oriented
- Focus on Excellence
- Strategic Influence
- Critical Inquiry
- Systematic Thinking
- Proactive Information Gathering

- Interpersonal Assessment

Second, both of the two "dummy" competencies that successful program managers rated as being among the most important characteristics of the "ideal" program managers were rated by acquisition students as being important.

These results indicate that the acquisition student's level of awareness, with regards to the relative importance of these competencies, is consistent with that of the successful program managers.

G. DEVELOPMENT AREAS FOR PROGRAM MANAGERS

The data regarding development areas for program managers, obtained from the Program Managers Competency Survey, show a high degree of consistency between the responses of program managers and acquisition students.[23] Survey respondents were asked to identify the six competencies that they felt that additional education and training programs would benefit the greatest number of program managers. Of the 27 competencies listed, program managers and acquisition students rated 25 competencies within 10% of each other.

The most significant finding from this survey data was in the area of Political Awareness. Over 50% of the program managers and acquisition students thought that most program

[23]The Development areas from program managers data are presented in Appendix C.

managers would benefit from more education and training in the area of Political Awareness. This was the only competency in either survey population to be selected by over 50% of the respondents. These results indicate that acquisition students need more than just a foundation in the study of Political Awareness. While the study of Political Awareness is integrated into both DSMC and NPS acquisition curricula, it should be reinforced through on-the-job-training of the individual.

During the interview process, program managers stated that the fundamentals of political awareness should be taught in an educational environment. However, further development of the junior acquisition officer's understanding of Political Awareness should come in the form of professional development instruction by the program manager. The program managers are people who have concrete examples illustrating what happens to program managers who understand, or failed to understand, his political environment. These "real world" examples are far more likely to have a positive impact on a junior officer than a classroom decision based on case studies.

This is not to say that the classroom serves no purpose in developing future program managers. It is from the educational environment that members of the Acquisition Corps obtain the fundamental body of knowledge from which to build on.

H. COMPETENCY AWARENESS INTEGRATION BY DSMC AND NPS

The fundamental body of knowledge for the acquisition profession is provided to members of the Acquisition Corps through programs offered by DSMC and NPS. Overall, both the Program Management Course and the Systems Acquisition Management curriculum adequately integrate the competencies identified in this chapter into their respective curricula.

1. Competency Awareness Integration by NPS

An analysis of the NPS Systems Acquisition Management curriculum of the eleven core competencies across function areas revealed that each competency is reviewed in at least two functional areas and eight are covered in four or more functional areas.[24] This broad base approach allows students to understand each of these competencies through multiple perspectives. By using a multi-faceted approach, the NPS curriculum provides students with a basic understanding of the roles that these competencies play in the DoD procurement process.

While the educational emphasis of these core competencies are distributed adequately across functional areas by NPS, the five competencies that distinguished successful program managers are not. In the Systems Acquisition Management Curriculum, only two of the five

[24]Competencies across functional area data for the Systems Acquisition Management curriculum is presented in Appendix C.

competencies, Relationship Development and Results Oriented, are integrated in three or more functional areas. The remaining three competencies (Coaches Others, Self Control, and Interpersonal Assessment) are integrated into two functional areas. These results show that the majority of the competencies that distinguish successful program managers are being integrated into less than 17% of the functional areas.

2. Competency Awareness Integration by DSMC

The original DSMC study found that the lecture and discussion methodology used in presenting functional area lessons provided students with "almost no opportunity to reinforce or enhance the program manager competencies." (Cullen & Gadeken, 1990, p. 5.5) However, the use of case studies in both functional areas and integrated subjects did provide students with many opportunities to examine these competencies by addressing the problems and situations presented in the individual cases. The DSMC study also found that the Grand Slam exercises were very effective in reinforcing the importance of these competencies through the use of scenarios. (Cullen and Gadeken, 1990, pp. 5.5 - 5.10)

It is difficult to empirically evaluate the extent to which Program Manager Competencies are being taught to DSMC students because an evaluation of the Program Manager Competencies across functional areas has not been conducted for the Program Management Course. However, it seems logical

to assume that students enrolled in the Program Management Course are receiving less emphasis on these competencies than their NPS counterparts.[25] Therefore, neither curricula are providing acquisition students with an adequate level of awareness regarding the relative importance of those competencies that distinguish successful program managers.

I. SUMMARY

The data obtained from the Program Manager Competency Survey and the interviews of successful program managers have revealed three points of interest. First, the original DSMC competencies are, for the most part, still reflective of the competencies found in program managers today. Second, the acquisition students of today have a well founded level of awareness as to the relative level of importance of each of these competencies. Finally, both DSMC and NPS are providing students with an adequate foundation towards understanding how the core competencies relate to program management, but need to place more emphasis on those competencies that distinguish successful program managers. Since the educational curricula of NPS and DSMC are partially based on functional areas rather than on competencies, any changes in these curricula could

[25]This assumption is based on an evaluation of the number of classroom hours spent in each functional area. On average, the Systems Acquisition Management curriculum spends twice the amount of classroom hours in each functional area as the Program Management Course does.

inadvertently lower the amount of instruction offered for a given competency.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. OVERVIEW

As stated in Chapter II, the primary role of an Army ACAT-I program manager is to direct the development and production of a weapon system within the constraints of cost, schedule, and performance. In order to successfully accomplish this, the program manager must exhibit certain competencies. His ability to integrate these competencies into the management of his program plays an important part in the success of that program.

B. CONCLUSIONS

1. General Conclusions

This study has validated 14 of the original 16 competencies identified in the DSMC Job Competency Model for ACAT-I program managers. These competencies are:

- Political Awareness
- Relationship Development (*)[26]
- Results Oriented (*)
- Innovativeness
- Sense of Ownership

[26](*) Identifies those competencies that distinguish successful program managers. Those competencies not identified with an (*) are considered to be core competencies.

- Long Term Perspective
- Managerial Orientation
- Action Oriented
- Focus on Excellence
- Strategic Influence
- Critical Inquiry
- Systematic Thinking
- Proactive Information Gathering
- Interpersonal Assessment (*)

Eleven of these competencies were identified by both successful and average program managers as being among the most important or important competencies for the "ideal" program manager. Based on the results of this study and the original DSMC study these 11 competencies can be categorized as the core competencies for Army program managers. As a minimum, any educational or training program of future program managers must be based, at least in part, on these competencies.

2. Specific Conclusions

a. Competencies of Successful Program Managers

This study addressed the primary research question: **What characteristics distinguish the Army's best ACAT-I program managers?**

By surveying the Army's ACAT-I program managers, this study has identified five competencies that distinguish successful program managers. Three of these competencies were from the original DSMC Job Competency Model. These competencies are:

- Relationship Development (*)
- Results Oriented (*)
- Interpersonal Assessment (*)

The two additional competencies, identified by the DSMC study as "dummy" competencies, are:

- Coaches Others (*)
- Self Control (*)

Why these two "dummy" competencies are more important to successful program managers today then they were five years ago is a matter for speculation.

In the original DSMC study, "Coaches Others" and "Self Control" were ranked 12th and 16th out of the 27 competencies respectively. It could be argued that the relative increase in importance of the "Coaches Others" competency is a direct result of the establishment of the Army Acquisition Corps. Prior to the Army Acquisition Corps, career advancement of junior officers was mostly tied to their performance in their basic branch (e.g. Armor, Infantry,

Ordnance). With the establishment of the Army Acquisition Corps, career advancement of the acquisition officer is now tied directly to their performance in acquisition related positions. The program managers of today understand that future success of those junior officers, and the Acquisition Corps in general, depends on the program manager's ability to provide professional development and guidance to those officers.

The relative increase in the importance of "Self Control" is not as easy to ascertain. It could be due to increasing budget pressures faced by program managers or because of the increased awareness of Total Quality Management. The results of this study are inclusive in this regard. What is known is that the relative importance of the "Self Control" competency has dramatically increased over the past five years. During that time period, the relative ranking of the competency "Self Control" has increased from 16th to 4th out of 27 competencies.

b. Competency Awareness Integration by DSMC and NPS

The other significant finding of this study was that the educational foundation that the DSMC Program Management Course and the NPS Systems Acquisition Management curriculum both provide acquisition students with a well founded awareness of the 11 core competencies. However, both

institutions should provide more emphasis on the five competencies which distinguish successful program managers.

Both the DSMC and NPS curricula are based primarily on functional areas rather than these 16 competencies. While this is not necessarily inappropriate, any major changes to these curricula could inadvertently lessen or eliminate the awareness level that is currently being provided for any given competency.

The very nature of education requires that it be allowed to evolve over time. It is the responsibility of the institutions that are providing the educational foundations for future program managers to ensure that an awareness of these competencies continue to be part of that foundation.

C. RECOMMENDATIONS

In order to ensure that future program managers continue to receive a fundamental awareness of these competencies, both DSMC and NPS should develop a block of instruction specifically devoted to these competencies.

The course could be entitled "Marketing for Program Managers." It should integrate both the core competencies and those that distinguish successful program managers. It should be designed to provide acquisition students with solid examples that illustrate what happens to program managers who understand, or fail to understand, a particular competency.

In selecting the instructors for this course, both the

academic and acquisition experience of the instructor should be considered. Due to the nature of these competencies, more emphasis should be placed on acquisition experience then on academic experience of the instructor. A logical source of instructors for this course could be ex-program managers or senior acquisition personnel who could provide "real world" examples to the students.

This course could be integrated into the NPS Systems Acquisition Management curriculum in place of an elective or as part of the seminar program. DSMC could present this block of instruction during the integrated studies portion of the Program Management Course.

By establishing the "Marketing for Program Managers" course, we would ensure that future program managers are provided a "blue print" for becoming successful program managers. It would also ensure that as educational programs related to the acquisition process evolve, these competencies would become an integral part of the education of future program managers.

D. LIMITATIONS OF THIS RESEARCH

This research focused on what competencies were important to Army program managers, not why they were important. To truly understand the role that these competencies play in program management, the question of why are they important must be answered. Further research should focus on why these

competencies are important and to what extent program managers actually integrate these competencies into their management approach to program management. This research could be effectively integrated into a case study of several successful program managers.

The second limitation of this research is its relative scope. This research focused on Army ACAT-I program managers. Whether the findings of this research are valid throughout DoD is an area for future study. This could be accomplished by administering the Program Managers Competency Survey to ACAT-I program managers from both the Navy and the Air Force. The results of this research would provide DoD with an effective tool in developing educational programs for future program managers.

The final limitation of this study is the Program Manager Competency Survey itself. Many of the definitions are similar to others, and some of the competencies themselves should be renamed. Some of the survey results may have changed if the competency "Optimizing" would have been renamed "Prioritzing"; or the competency "Professionalism" changed to "Professional Expertise". Additionally, the original format of the DSMC survey was changed to make the survey easier to read. If the Program Manager Competency Survey is used as the basis for future research, these concerns should be addressed.

While these limitations do not invalidate this study, they do identify areas for additional research.

APPENDIX A: PROGRAM MANAGER COMPETENCY SURVEY

SURVEY NUMBER:_____

PROGRAM MANAGER SURVEY
FOR
ACQUISITION CAREER MANAGEMENT
SUBJECT:
JOB COMPETENCIES FOR PROGRAM MANAGERS

This survey is designed to provide an overall picture of the knowledge and skills that program managers need to perform effectively. In order to gather this information, we are surveying Program Executive Officers, Deputy Program Executive Officers, Program Managers of ACAT-1 programs, students from the Defense Systems Management College (DSMC) Program Managers course, and students from the Naval Postgraduate School's Systems Acquisition Management curriculum.

The information collected will be used to help refine existing management educational programs offered by the Systems Acquisition Management curriculum at NPS, and those programs sponsored by DSMC.

Your responses will be kept confidential. Please be as candid as possible. We need your judgment based on your experience rather than the "party line". There are two parts to the survey. Please read the instructions carefully before answering any questions.

If you have questions concerning the survey, please call CPT Bryan J. Mc Veigh at the Naval Post Graduate School DSN: 878-2526, Civilian: (408) 656-2536, Home: (408) 899-3920. FAX: (DSN) 878-2138.

Once you have completed the survey; please mail it to: Administrative Science Department, Code: AS/HA, ATTN: CPT Bryan J. Mc Veigh, Naval Postgraduate School, 555 Dyer Rd, RM 220, Monterey, CA 93943-5000. PLEASE COMPLETE AND RETURN THIS SURVEY BY FRIDAY, 28 JANUARY, 1994.

PART I

The following pages list 27 characteristics of program managers.

In the first column, entitled **"Ideal Program Managers"**, please select 9 of the characteristics that you feel are most important to an "IDEAL" program manager. Indicate your selections with a **"T" (Top)**.

Secondly, using the first column again, select the 9 characteristics which you feel are the less important to being an "IDEAL" program manager. Indicate your selections with a **"B" (Bottom)**.

Next, using the second column, entitled **"Development Areas For Program Managers"**, select the 6 areas that you feel additional education and training programs would benefit the greatest number of program managers. Indicate your selections with an **"X"**.

Suggestion: Go through the list in pencil and make your initial selections. Then go back and eliminate or add to your initial selections. Complete your selections for column one, then go to column two. **MAKE SURE YOU HAVE IDENTIFIED EXACTLY 9 "TOP" AREAS, 9 "BOTTOM" AREAS, AND 6 DEVELOPMENTAL AREAS.**

CHARACTERISTIC DEFINITIONS

1. **Sense of Ownership/Mission:** Seeing self as the one responsible for the overall success of the program.

2. **Focus on Excellence:** Striving to achieve the highest standards regardless of circumstances.

3. **Professionalism:** Seeing self or being seen by others as a technical expert in one or more acquisition specialty areas.

4. **Optimizing:** Making decisions after carefully evaluating the advantages and disadvantages.

5. **Interpersonal Assessment:** Identifying the specific abilities, interest, motivations, characteristics, or styles of others.

6. **Attention to Detail:** Carefully reviewing plans, reports, etc., to ensure that they are complete, accurate, and that they conform to standards.

7. **Collaborative Influence:** Modifying position to obtain the agreement and support of others in order to accomplish a shared goal or mission.

8. **Long Term Perspective:** Taking the time needed to think through future issues and problems.

9. **Coaches Others:** Providing others with performance feedback and suggestions to improve their capabilities.

10. **Results Oriented:** Evaluating own and other's performance in terms of accomplishing specific goals or meeting specific standards.

11. **Political Awareness:** Understanding who the influential players are, what they want, and how to best work with them.

12. **Creativity:** Thinking up novel or unique ways to solve technical or administrative problems that others have difficulty solving.

13. **Directive Influence:** Exercising full range of authority to gain the agreement or compliance of others.

14. **Assertiveness:** Stating own position forcefully or aggressively in the face of opposition from others with influence.

15. **Efficiency Orientation:** Continuously looking for ways to cut cost and complete even routine tasks more quickly.

16. **Proactive Information Gathering:** Systematically collecting new and reviewing existing information to determine the appropriate decision or course of action.

17. **Innovativeness:** Championing or initiating new ways of meeting program requirements.

18. **Positive Expectations:** Assumes that others will perform effectively if given the opportunity and the needed resources.

19. **Critical Inquiry:** Exploring critical issues that are not explicitly addressed or recognized by others.

20. **Relationship Development:** Spending time and energy getting to know program sponsors, contractors, or other influential people.

21. **Competitiveness:** Being energized by any direct or indirect challenge to own or work group's performance.

22. **Managerial Orientation:** Seeing ones own role as getting work done through the efforts of others.

23. **Action Oriented:** Reacting to issues and problems energetically and with a sense of urgency.

24. **Self Control:** Remaining calm and unemotional in stressful situations.

25. **Systematic Thinking:** Taking planned methodical approaches to organizing work and solving problems.

26. **Strategic Influence:** Building coalitions with influential others and orchestrating situations to overcome obstacles and obtain support.

27. **Interpersonal Sensitivity:** Accurately identifying the spoken or unspoken feelings of others and acting accordingly.

IDEAL PROGRAM MANAGERS:
* "T" in the 9 areas which are most important.
"B" in the 9 areas which are least important.

DEVELOPMENT AREAS FOR FOR PROGRAM MANAGERS:
* "X" in top 6 areas that need additional educational and training programs.

CHARACTERISTICS	IDEAL PROGRAM MANAGERS	DEVELOPMENT AREAS FOR PROGRAM MANAGERS
1. Sense of Ownership/Mission:	_____	_____
2. Focus on Excellence:	_____	_____
3. Professionalism:	_____	_____
4. Optimizing:	_____	_____
5. Interpersonal Assessment:	_____	_____
6. Attention to Detail:	_____	_____
7. Collaborative Influence:	_____	_____
8. Long Term Perspective:	_____	_____
9. Coaches Others:	_____	_____
10. Results Oriented:	_____	_____
11. Political Awareness:	_____	_____
12. Creativity:	_____	_____
13. Directive Influence:	_____	_____
14. Assertiveness:	_____	_____
15. Efficiency Orientation:	_____	_____
16. Proactive Information Gathering:	_____	_____
17. Innovativeness:	_____	_____
18. Positive Expectations:	_____	_____
19. Critical Inquiry:	_____	_____
20. Relationship Development	_____	_____
21. Competitiveness:	_____	_____
22. Managerial Orientation:	_____	_____
23. Action Oriented:	_____	_____
24. Self Control:	_____	_____
25. Systematic Thinking:	_____	_____
26. Strategic Influence:	_____	_____
27. Interpersonal Sensitivity:	_____	_____

TOTAL "T"(9):_____ TOTAL "B"(9):_____ TOTAL "X"(6):_____

PART II

Please provide the following background information. We will use this information to analyze the aggregate information obtained in Part I of this survey.

A. Current military rank or civil service grade (circle one):

1. 06
2. 05
3. 04
4. 03
5. Other:_____
6. Senior Executive Service (SES)
7. GS/GM-15
8. GS/GM-14
9. GS/GM-13
10. Other:_____

B. Current organization (circle one):

1. Program Executive Office
2. Program Office
3. DSMC
4. NPS

C. Current position (circle one):

1. Program Executive Officer
2. Deputy or Assistant Program Executive Officer
3. Program Manager
4. DSMC Student
5. NPS Student

D. If you are currently assigned to NPS; how many quarters have you completed (circle one)?

1. 1 quarter
2. 2 quarter
3. 3 quarter
4. 4 quarter
5. 5 quarter
6. 6 quarter

E. Previous acquisition-related positions you have held (circle all appropriate responses, and round to the nearest whole year).

		Yes	No	If yes, how many years
1.	Program Executive	1	2	_____
2.	Deputy Program Executive	1	2	_____
3.	Program Manager	1	2	_____
4.	Program Manager Staff	1	2	_____
5.	Product Manager	1	2	_____
6.	Product Manager Staff	1	2	_____
7.	Test and Evaluation	1	2	_____
8.	Training with Industry	1	2	_____
9.	New Equipment Fielding	1	2	_____
10.	Force Development Officer	1	2	_____
11.	Combat Development Officer	1	2	_____
12.	Research Laboratory	1	2	_____
13.	Other (please specify)_____			_____

F. Looking back over the experience areas you filled out in E above, which one area <u>was the most useful</u> in preparing you to become a program manager (circle one).

1.	Program Manager Staff	2.	Product Manager
3.	Product Manager Staff	4.	Test and Evaluation
5.	Training with Industry	6.	New Equipment Fielding
7.	Force Development Officer	8.	Combat Development Officer
9.	Research Laboratory	10.	Other (please specify): _____

G. Length of time in acquisition related positions: _____ year (s)

H. Formal Education Background:

(1) Bachelor Degrees or equivalent (circle all appropriate responses):

		Yes	No
1.	Engineering	1	2
2.	Physical Sciences or Mathematics	1	2
3.	Biological Sciences	1	2
4.	Computer Sciences	1	2
5.	Business, Economics, or Management	1	2
6.	Liberal Arts	1	2
7.	Other (please specify) _____		

(2) Graduate Degrees (circle all appropriate responses):

		Yes	No
1.	Engineering	1	2
2.	Physical Sciences or Mathematics	1	2
3.	Biological Sciences	1	2
4.	Computer Sciences	1	2
5.	Business, Economics, or Management	1	2
6.	Liberal Arts	1	2
7.	Other (please specify) _____		

I. Courses in Acquisition Management lasting at least five days (for additional courses specify sponsor and course title):

	SPONSOR	COURSE TITLE	YES	NO
1.	DSMC	Program Management Course (PMC) Part I (six week course)	1	2
2.	DSMC	Program Management Course (PMC) Part I and II (20 week course)	1	2
3.	DSMC	Executive Refresher Course	1	2
4.	DSMC	Executive Management Course	1	2
5.	DSMC	Fundamentals of Systems Acquisition Course.	1	2
6.	DSMC	Intermediate Systems Acquisition Course (Formerly: Acquisition Basic Course).	1	2
7.	ALMC	Material Acquisition Management Course.	1	2
8.	_____	_____		
9.	_____	_____		
10.	_____	_____		
11.	_____	_____		

J. If you are currently a program manager, please identify what Acquisition Category (ACAT) your program is (circle one):

1. ACAT-1/D
2. ACAT-1/C
3. ACAT-2
4. ACAT-3
5. ACAT-4
6. Other (please specify): _____

K. If you are currently a program manager, please identify which acquisition phase your program is currently in (circle one):

1. Phase 0 (Concept Exploration & Definition)
2. Phase I (Demonstration and Validation)
3. Phase II (Engineering & Manufacturing Development)
4. Phase III (Production and Deployment)
5. Phase IV (Operation & Support)
6. Other (please specify): _____

L. REMARKS: Please add any remarks that might improve this study or enhance the educational programs for program managers:

_____

_____

_____

_____

_____

APPENDIX B: PROGRAM MANAGER INTERVIEW QUESTIONS

Dear Sir,

I would like to thank you again for agreeing to this interview. I intend to ask the attached questions during our meeting. I thought that you may wish to review them prior to our video tela-conference. Additionally, I have attached a copy of the competency definitions to assist you in preparing you answers.

As you review these questions, it may help to think about some of the major events that have accrued since you became a program manager, and then formulate you answer within that context.

If I can provide you with any additional information, please call me at (408) 899-3920.

Bryan J. Mc Veigh
CPT, AR

CHARACTERISTIC DEFINITIONS

1. **Sense of Ownership/Mission:** Seeing self as the one responsible for the overall success of the program.

2. **Focus on Excellence:** Striving to achieve the highest standards regardless of circumstances.

3. **Professionalism:** Seeing self or being seen by others as a technical expert in one or more acquisition specialty areas.

4. **Optimizing:** Making decisions after carefully evaluating the advantages and disadvantages.

5. **Interpersonal Assessment:** Identifying the specific abilities, interest, motivations, characteristics, or styles of others.

6. **Attention to Detail:** Carefully reviewing plans, reports, etc., to ensure that they are complete, accurate, and that they conform to standards.

7. **Collaborative Influence:** Modifying position to obtain the agreement and support of others in order to accomplish a shared goal or mission.

8. **Long Term Perspective:** Taking the time needed to think through future issues and problems.

9. **Coaches Others:** Providing others with performance feedback and suggestions to improve their capabilities.

10. **Results Oriented:** Evaluating own and other's performance in terms of accomplishing specific goals or meeting specific standards.

11. **Political Awareness:** Understanding who the influential players are, what they want, and how to best work with them.

12. **Creativity:** Thinking up novel or unique ways to solve technical or administrative problems that others have difficulty solving.

13. **Directive Influence:** Exercising full range of authority to gain the agreement or compliance of others.

14. **Assertiveness:** Stating own position forcefully or aggressively in the face of opposition from others with influence.

15. **Efficiency Orientation:** Continuously looking for ways to cut cost and complete even routine tasks more quickly.

16. **Proactive Information Gathering:** Systematically collecting new and reviewing existing information to determine the appropriate decision or course of action.

17. **Innovativeness:** Championing or initiating *new ways of* meeting program requirements.

18. **Positive Expectations:** Assumes that others will perform effectively if given the opportunity and the needed resources.

19. **Critical Inquiry:** Exploring critical issues that are not explicitly addressed or recognized by others.

20. **Relationship Development:** Spending time and energy getting to know program sponsors, contractors, or other influential people.

21. **Competitiveness:** Being energized by any direct or indirect challenge to *own* or work group's performance.

22. **Managerial Orientation:** Seeing ones own role as getting work done through the efforts of others.

23. **Action Oriented:** Reacting to issues and problems energetically and with a sense of urgency.

24. **Self Control:** Remaining calm and unemotional in stressful situations.

25. **Systematic Thinking:** Taking planned methodical approaches to organizing work and solving problems.

26. **Strategic Influence:** Building coalitions with influential others and orchestrating situations to overcome obstacles and obtain support.

27. **Interpersonal Sensitivity:** Accurately identifying the spoken or unspoken feelings of others and acting accordingly.

INTERVIEW QUESTION FOR PROGRAM MANGERS

1) *As a program manager, how have the following competencies affected the way you manage your program? (Indicate your answer with an "X".)*

COMPETENCY	PROGRAM EXTERNAL ENVIRONMENT	PROGRAM INTERNAL ENVIRONMENT	PROGRAM PERFORMANCE	PROGRAM PRODUCTIVITY	EXAMPLES
SENSE OF OWNERSHIP					
FOCUS ON EXCELLENCE					
OPTIMIZING					
INTERPERSONAL ASSESSMENT					
ATTENTION TO DETAIL					
LONG TERM PERSPECTIVE					
RESULTS ORIENTED					
POLITICAL AWARENESS					
ASSERTIVENESS					
PROACTIVE INFORMATION GATHERING					
INNOVATIVENESS					
CRITICAL INQUIRY					
RELATIONSHIP DEVELOPMENT					
MANAGERIAL ORIENTATION					
ACTION ORIENTED					
SELF CONTROL					
SYSTEMATIC THINKING					
STRATEGIC INFLUENCE					
PROFESSIONALISM					

2) As a program manager, do you think the following competencies can be taught or are they an inherent skill? (Indicate your answer with an "X".)

COMPETENCY	SKILL THAT CAN BE TAUGHT	INHERENT SKILL	EXAMPLE
SENSE OF OWNERSHIP			
FOCUS ON EXCELLENCE			
OPTIMIZING			
INTERPERSONAL ASSESSMENT			
ATTENTION TO DETAIL			
LONG TERM PERSPECTIVE			
RESULTS ORIENTED			
POLITICAL AWARENESS			
ASSERTIVENESS			
PROACTIVE INFORMATION GATHERING			
INNOVATIVENESS			
CRITICAL INQUIRY			
RELATIONSHIP DEVELOPMENT			
MANAGERIAL ORIENTATION			
ACTION ORIENTED			
SELF CONTROL			
SYSTEMATIC THINKING			
STRATEGIC INFLUENCE			
PROFESSIONALISM			

3) What educational experience has best prepared you for becoming a program manager? How did this experience prepared you?

4) What job has best prepared you for becoming a program manager? How did this experience prepare you?

5) What could you have done to have been better prepared for becoming a program manager?

6) What do you think will be the most significant challenges facing program managers five years from now?

7) How can we train junior members of the Acquisition Corps now to be ready for those challenges?

APPENDIX C: PROGRAM MANAGER COMPETENCY SURVEY RESULTS

TABLE V
SUCCESSFUL PROGRAM MANAGER COMPETENCY SURVEY RESULTS
(N = 11)

	FREQUENCY			MEAN	STANDARD DEVIATION
	LEAST IMPORTANT	IMPORTANT	MOST IMPORTANT		
SENSE OF OWNERSHIP	4	0	7	2.27	1.009
POLITICAL AWARENESS	1	3	7	2.36	.688
RELATIONSHIP DEVELOPMENT	2	3	6	2.36	.809
STRATEGIC INFLUENCE	3	4	4	2.09	.831
INTERPERSONAL ASSESSMENT	3	7	1	1.81	.603
ASSERTIVENESS	7	2	2	1.54	.820
MANAGERIAL ORIENTATION	3	3	5	2.18	.874
RESULTS ORIENTATION	1	5	5	2.36	.688
CRITICAL INQUIRY	3	4	4	2.09	.831
LONG TERM PERSPECTIVE	1	6	4	2.27	.647
FOCUS ON EXCELLENCE	4	2	5	2.00	.944
INNOVATIVENESS	1	5	5	2.36	.674
OPTIMIZING	5	5	1	1.63	.674
ACTION ORIENTATION	3	3	5	2.18	.874
PROACTIVE INFORMATION GATHERING	3	5	3	2.00	.775
ATTENTION TO DETAIL	5	5	1	1.63	.674
COLLABORATIVE INFLUENCE	6	4	1	1.54	.688
COACHES OTHERS	1	4	6	2.45	.688
CREATIVITY	3	3	5	2.18	.874
DIRECTIVE INFLUENCE	10	1	0	1.09	.301
EFFICIENCY ORIENTATION	7	4	0	1.36	.505
POSITIVE EXPECTATIONS	2	5	4	2.18	.751
COMPETITIVENESS	9	1	1	1.27	.647
SELF CONTROL	2	3	6	2.36	.809
PROFESSIONALISM	3	4	4	2.09	.831
INTERPERSONAL SENSITIVITY	3	5	3	2.00	.775
SYSTEMATIC THINKING	4	3	4	2.00	.894

TABLE VI
AVERAGE PROGRAM MANAGER COMPETENCY SURVEY RESULTS
(N = 14)

	FREQUENCY			MEAN	STANDARD DEVIATION
	LEAST IMPORTANT	IMPORTANT	MOST IMPORTANT		
SENSE OF OWNERSHIP	3	2	9	2.42	.852
POLITICAL AWARENESS	3	2	9	2.42	.852
RELATIONSHIP DEVELOPMENT	2	7	5	2.21	.699
STRATEGIC INFLUENCE	8	2	4	1.71	.914
INTERPERSONAL ASSESSMENT	7	5	2	1.64	.745
ASSERTIVENESS	6	3	5	1.92	.917
MANAGERIAL ORIENTATION	1	4	9	2.14	.770
RESULTS ORIENTATION	3	6	5	2.14	.770
CRITICAL INQUIRY	4	9	1	1.78	.579
LONG TERM PERSPECTIVE	3	4	7	2.28	.825
FOCUS ON EXCELLENCE	2	8	4	2.14	.663
INNOVATIVENESS	1	4	9	2.57	.646
OPTIMIZING	4	4	6	2.14	.864
ACTION ORIENTATION	3	6	5	2.14	.770
PROACTIVE INFORMATION GATHERING	2	7	5	2.21	.699
ATTENTION TO DETAIL	4	4	6	2.14	.864
COLLABORATIVE INFLUENCE	4	5	5	2.07	.829
COACHES OTHERS	3	7	4	2.07	.730
CREATIVITY	4	4	6	2.14	.864
DIRECTIVE INFLUENCE	10	3	1	1.35	.633
EFFICIENCY ORIENTATION	10	3	1	1.35	.633
POSITIVE EXPECTATIONS	5	6	3	1.85	.770
COMPETITIVENESS	9	5	0	1.35	.497
SELF CONTROL	4	7	3	1.92	.730
PROFESSIONALISM	2	7	5	2.14	.699
INTERPERSONAL SENSITIVITY	9	4	1	1.42	.646
SYSTEMATIC THINKING	2	7	5	2.21	.699

TABLE VII
ACQUISITION STUDENT COMPETENCY SURVEY RESULTS
(N = 140)

	FREQUENCY			MEAN	STANDARD DEVIATION
	LEAST IMPORTANT	IMPORTANT	MOST IMPORTANT		
SENSE OF OWNERSHIP	34	21	85	2.36	.850
POLITICAL AWARENESS	21	30	89	2.48	.744
RELATIONSHIP DEVELOPMENT	32	41	67	2.25	.805
STRATEGIC INFLUENCE	36	46	58	2.15	.807
INTERPERSONAL ASSESSMENT	60	50	30	1.78	.775
ASSERTIVENESS	61	49	30	1.77	.778
MANAGERIAL ORIENTATION	34	40	66	2.22	.816
RESULTS ORIENTATION	18	60	62	2.31	.690
CRITICAL INQUIRY	58	52	30	1.77	.769
LONG TERM PERSPECTIVE	14	47	79	2.46	.672
FOCUS ON EXCELLENCE	29	41	70	2.29	.791
INNOVATIVENESS	30	48	62	2.22	.780
OPTIMIZING	35	47	58	2.16	.801
ACTION ORIENTATION	42	57	41	1.99	.772
PROACTIVE INFORMATION GATHERING	37	60	43	2.04	.757
ATTENTION TO DETAIL	60	51	29	1.77	.768
COLLABORATIVE INFLUENCE	51	42	47	1.97	.839
COACHES OTHERS	37	59	44	2.05	.761
CREATIVITY	58	60	22	1.74	.713
DIRECTIVE INFLUENCE	88	38	14	1.41	.672
EFFICIENCY ORIENTATION	59	55	26	1.73	.745
POSITIVE EXPECTATIONS	56	50	34	1.84	.789
COMPETITIVENESS	104	27	9	1.32	.590
SELF CONTROL	59	54	27	1.77	.752
PROFESSIONALISM	35	42	63	2.20	.815
INTERPERSONAL SENSITIVITY	81	43	16	1.53	.693
SYSTEMATIC THINKING	30	50	60	2.21	.775

TABLE VIII
DEVELOPMENTAL AREAS FOR PROGRAM MANAGERS SURVEY RESULTS

	PROGRAM MANAGERS (N = 25)		ACQUISITION STUDENTS (N=140)	
	NUMBER INDICATING MORE DEVELOPMENT NEEDED	PERCENTAGE INDICATING MORE DEVELOPMENT NEEDED	NUMBER INDICATING MORE DEVELOPMENT NEEDED	PERCENTAGE INDICATING MORE DEVELOPMENT NEEDED
SENSE OF OWNERSHIP	2	.08	9	.06
POLITICAL AWARENESS	15	.60	69	.49
RELATIONSHIP DEVELOPMENT	5	.20	56	.40
STRATEGIC INFLUENCE	8	.32	51	.36
INTERPERSONAL ASSESSMENT	5	.20	38	.27
ASSERTIVENESS	1	.04	5	.04
MANAGERIAL ORIENTATION	8	.32	54	.39
RESULTS ORIENTATION	2	.08	20	.14
CRITICAL INQUIRY	10	.40	39	.28
LONG TERM PERSPECTIVE	9	.36	58	.41
FOCUS ON EXCELLENCE	5	.20	24	.17
INNOVATIVENESS	9	.36	41	.29
OPTIMIZING	5	.20	42	.30
ACTION ORIENTATION	3	.12	7	.05
PROACTIVE INFORMATION GATHERING	6	.24	33	.24
ATTENTION TO DETAIL	2	.08	11	.08
COLLABORATIVE INFLUENCE	7	.28	37	.26
COACHES OTHERS	8	.32	45	.32
CREATIVITY	8	.32	30	.21
DIRECTIVE INFLUENCE	0	0	10	.07
EFFICIENCY ORIENTATION	4	.16	35	.25
POSITIVE EXPECTATIONS	1	.04	17	.12
COMPETITIVENESS	0	0	7	.05
SELF CONTROL	2	.08	16	.11
PROFESSIONALISM	6	.24	22	.16
INTERPERSONAL SENSITIVITY	7	.28	26	.19
SYSTEMATIC THINKING	7	.28	45	.32

TABLE IX
COMPETENCIES ACROSS NPS FUNCTIONAL AREAS*

COMPETENCY*	FUNCTIONAL AREA											
	ACQUISITION POLICY & ENVIRONMENT	CONTRACTOR FINNANCE	CONTRACT MANAGEMENT	COST & SCHEDULE CONTROL	FUNDS MANAGEMENT	LOGISTICAL SUPPORT	MANAGERIAL DEVELOPMENT	MANUFACTURING MANAGEMENT	PRINCIPLES OF PROGRAM MANAGEMENT	SYSTEMS ENGINEERING	SOFTWARE MANAGMENT	TEST & EVALUATION
POLITICAL AWARENESS	X	X			X		X	X	X		X	
RELATIONSHIP DEVELOPMENT		X			X		X					
RESULTS ORIENTED	X	X	X	X	X	X	X	X	X	X	X	
INNOVATIVENESS							X			X	X	
SENSE OF OWNERSHIP	X		X	X								
LONG TERM PERSPECTIVE	X	X		X	X	X	X	X	X	X	X	X
MANAGERIAL ORIENTATION	X	X			X	X	X	X	X			
ACTION ORIENTED	X			X		X	X	X	X	X		X
FOCUS ON EXCELLENCE	X	X	X	X	X	X	X	X	X	X		
STRATEGIC INFLUENCE		X			X		X	X			X	
CRITICAL INQUIRY		X			X							
SYSTEMATIC THINKING	X		X	X	X	X		X	X	X		
PROACTIVE INFORMATION GATHERING		X		X	X	X	X	X	X	X	X	X
INTERPERSONAL ASSESSMENT		X			X		X		X			
COACHES OTHERS	X						X					
SELF CONTROL			X				X					

* Results based off of 50% of the courses in a given Functional Area teaching students a particular competency.

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